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JAN 28 1972

Rocky Mountain Medical Journal

COLORADO
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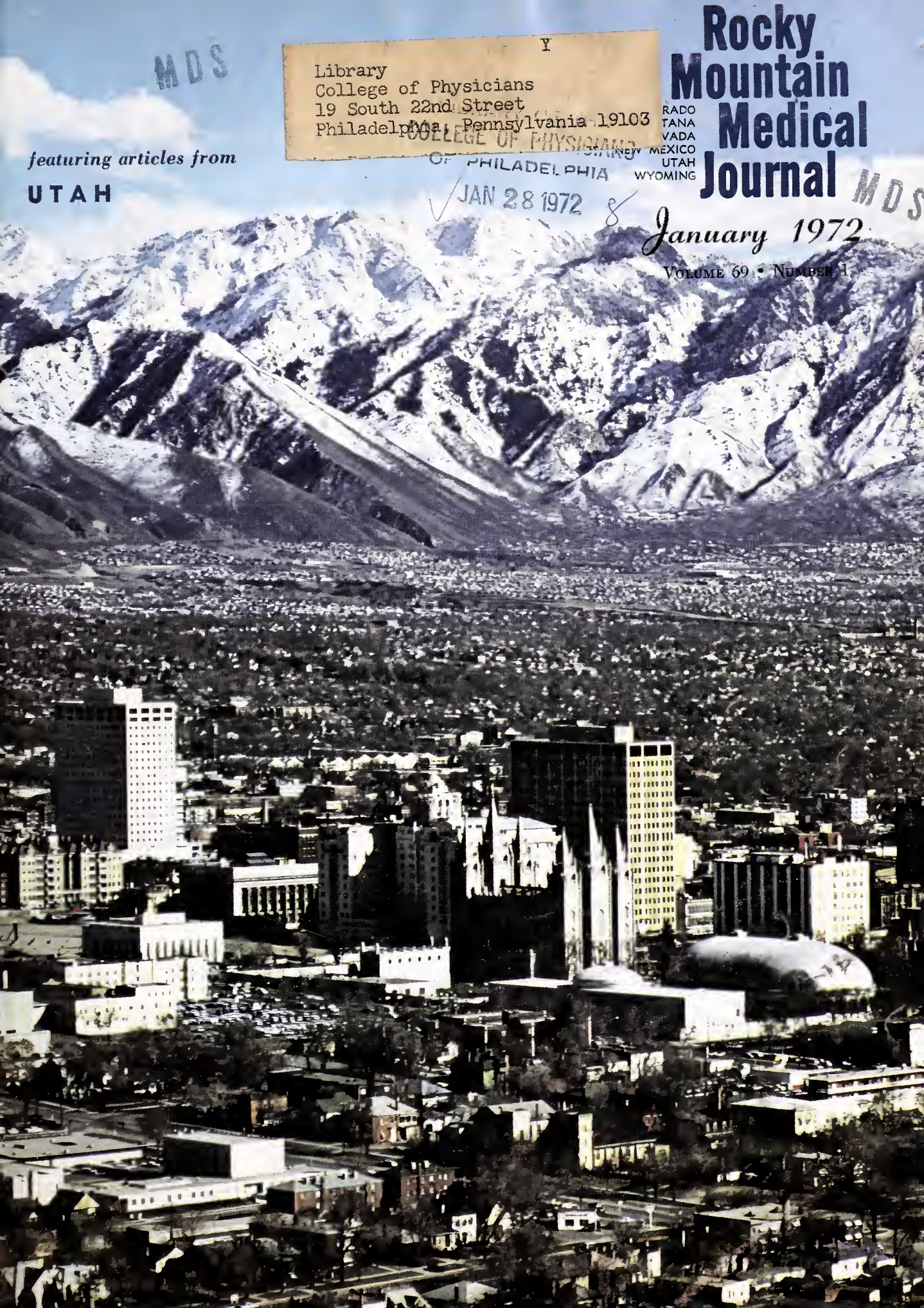
featuring articles from

UTAH

January 1972

VOLUME 69 • NUMBER 1



Important Note: This drug is not a simple analgesic. Do not administer casually. Carefully evaluate patients before starting treatment and keep them under close supervision. Obtain a detailed history, and complete physical and laboratory examination (complete hemogram, urinalysis, etc.) before prescribing and at frequent intervals thereafter. Carefully select patients, avoiding those responsive to routine measures, contraindicated patients or those who cannot be observed frequently. Warn patients not to exceed recommended dosage. Short-term relief of severe symptoms with the smallest possible dosage is the goal of therapy. Dosage should be taken with meals or a full glass of milk. Substitute alka capsules for tablets if dyspeptic symptoms occur. Patients should discontinue the drug and report immediately any sign of: fever, sore throat, oral lesions (symptoms of blood dyscrasia); dyspepsia, epigastric pain, symptoms of anemia, black or tarry stools or other evidence of intestinal ulceration or hemorrhage, skin reactions, significant weight gain or edema. A one-week trial period is adequate. Discontinue in the absence of a favorable response. Restrict treatment periods to one week in patients over sixty.

Indications: Acute gouty arthritis, rheumatoid arthritis, rheumatoid spondylitis.

Contraindications: Children 14 years or less; senile patients; history or symptoms of G.I. inflammation or ulceration including severe, recurrent or persistent dyspepsia; history or presence of drug allergy; blood dyscrasias; renal, hepatic or cardiac dysfunction; hypertension, thyroid disease; systemic edema; stomatitis and salivary gland enlargement due to the drug; polymyalgia rheumatica and temporal arteritis; patients receiving other potent chemotherapeutic agents, or long-term anticoagulant therapy.

Warnings: Age, weight, dosage, duration of therapy, existence of concomitant diseases, and concurrent potent chemotherapy affect incidence of toxic reactions. Carefully instruct and observe the individual patient, especially the aging (forty years and over) who have increased susceptibility to the toxicity of the drug. Use lowest effective dosage. Weigh initially unpredictable benefits against potential risk of severe, even fatal, reactions. The disease condition itself is unaltered by the drug. Use with caution in first trimester of pregnancy and in nursing mothers. Drug may appear in cord blood and breast milk. Serious, even fatal, blood dyscrasias, including aplastic anemia, may occur suddenly despite regular hemograms, and may become manifest days or weeks after cessation of drug. Any significant change in total white count, relative decrease in granulocytes, appearance of immature forms, or fall in hematocrit should signal immediate cessation of therapy and complete hematologic investigation. Unexplained bleeding involving CNS, adrenals, and G.I. tract has occurred. The drug may potentiate action of insulin, sulfonylurea, and sulfonamide-type agents. Carefully observe patients taking these agents. Nontoxic and toxic goiters and myxedema have been reported (the drug reduces iodine uptake by the thyroid). Blurred vision can be a significant toxic symptom worthy of a complete ophthalmological examination. Swelling of ankles or face in patients under sixty may be prevented by reducing dosage. If edema occurs in patients over sixty, discontinue drug.

Precautions: The following should be accomplished at regular intervals: Careful detailed history for disease being treated and detection of earliest signs of adverse reactions; complete physical examination including check of patient's weight; complete weekly (especially for the aging) or an every two week blood check; pertinent laboratory studies. Caution patients about participating in activity requiring alertness and coordination, as driving a car, etc. Cases of leukemia have been reported in patients with a history of short- and long-term therapy. The majority of these patients were over forty. Remember that arthritic-type pains can be the presenting symptom of leukemia.

Adverse Reactions: This is a potent drug; its misuse can lead to serious results. Review detailed information before beginning therapy. Ulcerative esophagitis, acute and reactivated gastric and duodenal ulcer with perforation and hemorrhage, ulceration and perforation of large bowel, occult G.I. bleeding with anemia, gastritis, epigastric pain, hematemesis, dyspepsia, nausea, vomiting and diarrhea, abdominal distention, agranulocytosis, aplastic anemia, hemolytic anemia, anemia due to blood loss including occult G.I. bleeding, thrombocytopenia, pancytopenia, leukemia, leukopenia, bone marrow depression, sodium and chloride retention, water retention and edema, plasma dilution, respiratory alkalosis, metabolic acidosis, fatal and nonfatal hepatitis (cholestasis may or may not be prominent), petechiae, purpura without thrombocytopenia, toxic pruritus, erythema nodosum, erythema multiforme, Stevens-Johnson syndrome, Lyell's syndrome (toxic necrotizing epidermolysis), exfoliative dermatitis, serum sickness, hypersensitivity angiitis (polyarteritis), anaphylactic shock, urticaria, arthralgia, fever, rashes (all allergic reactions require prompt and permanent withdrawal of the drug), proteinuria, hematuria, oliguria, anuria, renal failure with azotemia, glomerulonephritis, acute tubular necrosis, nephrotic syndrome, bilateral renal cortical necrosis, renal stones, ureteral obstruction with uric acid crystals due to uricosuric action of drug, impaired renal function, cardiac decompensation, hypertension, pericarditis, diffuse interstitial myocarditis with muscle necrosis, perivascular granulomata, aggravation of temporal arteritis in patients with polymyalgia rheumatica, optic neuritis, blurred vision, retinal hemorrhage, toxic amblyopia, retinal detachment, hearing loss, hyperglycemia, thyroid hyperplasia, toxic goiter, association of hyperthyroidism and hypothyroidism (causal relationship not established), agitation, confusional states, lethargy; CNS reactions associated with overdosage, including convulsions, euphoria, psychosis, depression, headaches, hallucinations, giddiness, vertigo, coma, hyperventilation, insomnia; ulcerative stomatitis, salivary gland enlargement. (B)98-146-070-G

Serious side effects do occur. Select patients carefully (particularly the elderly) and follow them closely in line with the drug's precautions, warnings, contraindications and adverse reactions.

For complete details, including dosage, please see full prescribing information.

GEIGY Pharmaceuticals
Division of CIBA-GEIGY Corporation
Ardsley, New York 10502

BU-8354-9

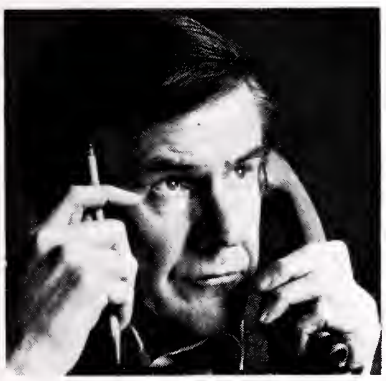
Sally's back in sew biz! After an arthritic flare-up.

Next time... **Butazolidin® alka** **Geigy**

Each capsule contains:
100 mg. phenylbutazone USP
100 mg. dried aluminum hydroxide gel USP
150 mg. magnesium trisilicate USP

If it doesn't work in a week, forget it.

Last week he got three new clients, four rush orders, and constipation.



More often than not, simple constipation is a by-product of the frantic pace of modern life. The natural urge to move one's bowels is subjugated to business and other pressures and, gradually, the normal defecation reflex is lost through habitual neglect. Along with other indicated measures, FLEET™ ENEMA can help "bring back the urge." It relieves acute constipation within 2 to 5 minutes—far faster than suppositories or soapsuds enemas and without the irritation and burning they can cause. More physio*logical* in its evacuation pattern than oral laxatives, it is less likely to disturb normal bowel function. And what could be simpler to use. No preparation. No fuss. No cleanup. FLEET ENEMA. It could keep success from spoiling your constipation-prone patients.

Warning: Frequent or prolonged use of enemas may result in dependence. Take only when needed or when prescribed by a physician. Do not use when nausea, vomiting, or abdominal pain is present. **Caution:** Do not administer to children under two years of age unless directed by a physician.

The professional aid to constipation relief

Fleet® pharmaceuticals C. B. FLEET CO., INC., Lynchburg, Va. 24505

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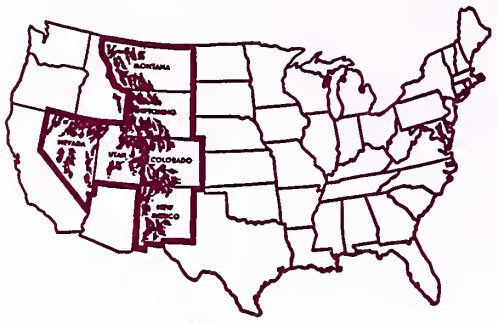
Volume 69, Number 1



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OUR COVER PHOTO

An impressive panoramic view of Salt Lake City. With the majestic snow covered peaks of the Wasatch Mountain Range as a back drop, it requires little imagination to agree with many observers that "Salt Lake City is the most beautifully situated City in America".—Photo courtesy Paragon Press, Salt Lake City.

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QUALITY CONTROL MARK

Letters TO THE EDITOR

December 14, 1971

To the Editor:

American Medical Association President Wesley W. Hall, MD, is to be commended for his call for a constitutional convention to restructure the organizational format of the Association and streamline its governing processes.

As a longtime AMA member, past county Society president and delegate, I considered long and hard before renewing my AMA membership. The year 1972 will be a year of decision for me—either the AMA will become more democratic, more responsive to the wishes of the rank and file members, less cumbersome in its organizational processes or reluctantly we will part company.

For starters I urge—at both State and National all levels—that issues be debated, reference committee reports be filed pro and con, and then these reports be submitted to *ALL* members for ballot on substantive issues. Thus, we would become a democratic organization in line with our great American tradition of the use of the ballot box for the preservation of our democracy.

A. H. Franzblau, MD
Carlsbad, New Mexico

Prominent Physician Visits Denver

Visiting Denver as a lecturer and hospital consultant at General Rose Memorial Hospital was John H. Knowles, MD, general director of the Massachusetts General Hospital and president-elect of the Rockefeller Foundation. During his early January visit, Dr. Knowles consulted with hospital administrators and directors of medical education throughout the Denver area. At a special staff conference called for the medical staff at General Rose and open to the medical community of Denver, Dr. Knowles gave his views on the community hospital of the future.

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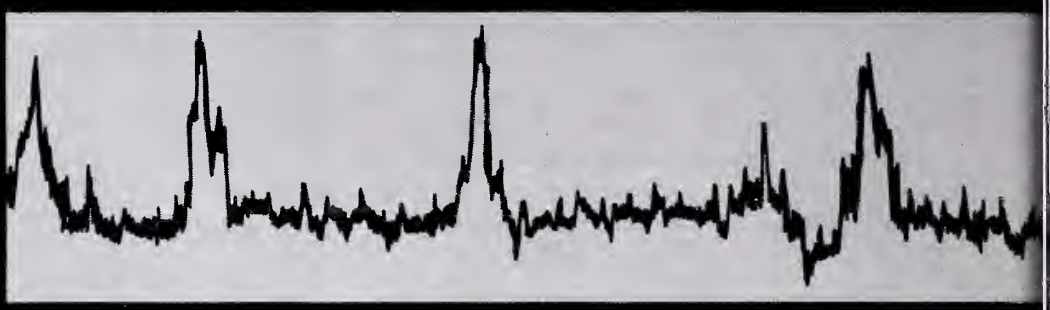
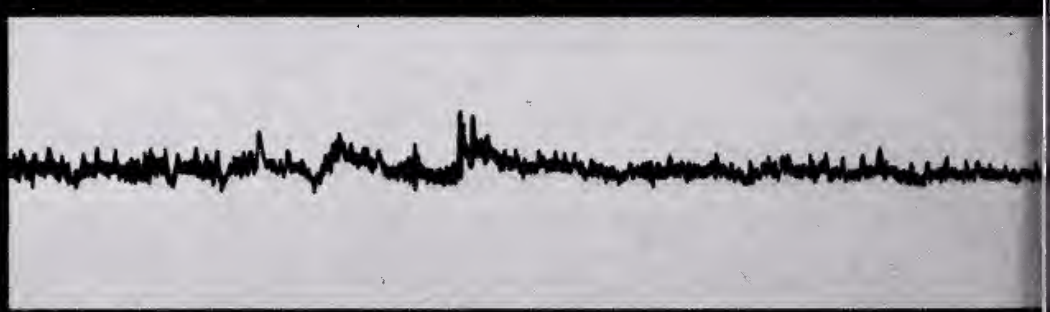
An intestinal autobiography of rage, contentment and horror*

"Feeling unfairly taxed by the government (Internal Revenue Service) and not given enough attention by A.U.O. [an experimenter to whom the subject became very attached], he became overtly critical and accusatory. He shouted, raged, and threatened to quit."*



"The motility that day was quiet. This type of recording is seen regularly when he is relaxed and contented and the laboratory seems peaceful."*

He was overwhelmed by "paralyzing horror" when told he would need a partial laryngectomy for removal of an early carcinoma; "...the activity of the ileum virtually ceased for over a five-minute period...."*



Background

*Data presented here derive from a 13-year ongoing study by Henry Harrison Sadler, M.D., and Aline Underhill Orten, Ph.D., at Wayne State University. Their findings, which demonstrate a correlation between the emotional state of a human subject and the motility of an isolated segment of his ileum, were published in the April, 1968, *American Journal of Psychiatry*, volume 124, page 1375.

The subject is a 56-year-old man with a 40-cm Thiry loop of ileum created as a result of emergency surgery. A person of modest attainment and simple tastes, the subject depends on the investigators as he might his own family. His full-time job is as a "human laboratory," and throughout the 13-year period of the study, he has taken great personal pride in his own participation.

A story charged with emotion

The graphs on the facing page are intestinal motility readings on a human subject experiencing the emotions of rage, contentment and horror (see "Background" below left). This "intestinal autobiography" dramatizes the point that certain emotions correlate with specific patterns of G.I. motility.

The visceral clutch and functional G.I. disorders

The gut response to stress has been amply demonstrated in many functional G.I. disorders. Nervous diarrhea and irritable colon syndrome, for example, are disorders associated with abnormal G.I. motility. And these disorders are commonest among patients sensitive to life-stress situations productive of conflict and excessive anxiety.

Librax® calms anxiety, calms the gut

In these areas of G.I. pathology, Librax has become a mainstay of adjunctive therapy. Reason? Effective two-way calming action. Librax, by relieving excessive anxiety, not only helps calm emotional overreaction to stress, it controls intestinal hypermotility, too. Depend on Librax—the only drug that combines the well-known antianxiety action of Librium® (chlordiazepoxide HCl) and the potent, dependable antisecretory/antispasmodic action of Quarzan® (clidinium Br).

1 or 2 capsules, 3 or 4 times daily in the treatment of nervous diarrhea and irritable colon syndrome

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Indicated as adjunctive therapy to control emotional and somatic factors in gastrointestinal disorders.

Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances, syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

In functional G.I. disorders, adjunctive Librax®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

calms anxiety, calms the G.I. tract

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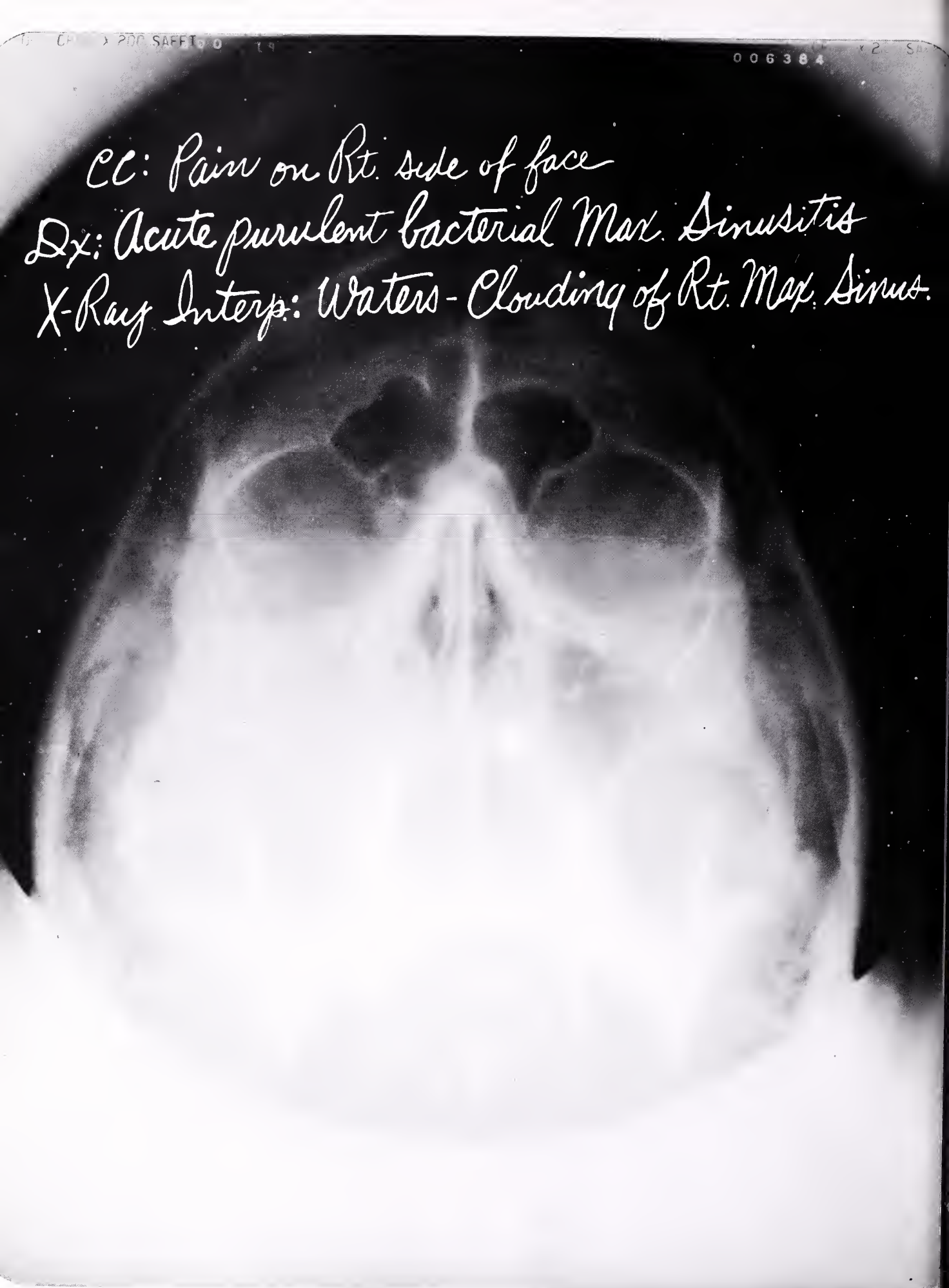

X-ray provided by Manhattan Eye, Ear and Throat Hospital

There are many frustrations in treating acute sinusitis. Cleocin manages most of the bacterial ones.

Inadequate drainage, chronic rhinitis, allergy, exposure to temperature extremes, and other factors can delay recovery from acute sinusitis.

It's helpful to have an antibiotic like Cleocin HCl (clindamycin HCl hydrate, Upjohn) that can take care of most of the gram-positive bacterial problems related to the disease.

As one study* of 52 outpatients showed, acute maxillary sinusitis was associated with staphylococci in 50% of the group, with pneumococci in 25%, and with streptococci and various other organisms (chiefly gram-negative) in the remainder. Significantly, one-half of these staphylococcal infections were resistant to both penicillin and tetracycline (all were sensitive to erythromycin and chloramphenicol). Although not a part of this study, many other clinical and bacteriologic reports[1] have shown that such gram-positive bacteria, which most often are associated with acute sinusitis, are usually susceptible to Cleocin.

Can be taken before, with, or after meals

The total absorption of Cleocin is virtually unaffected by the presence of food in the GI tract.[1] Cleocin thus can be administered as prescribed without interfering with the patient's mealtimes.

Useful in patients hypersensitive to penicillin

Cleocin's chemical structure bears no relationship to penicillin or the cephalosporins. Cleocin therefore may be especially useful in patients with acute sinusitis who report a history of hypersensitivity to these antibiotics. Although hypersensitivity reactions have been uncommon with Cleocin, it should be used cautiously in atopic individuals. Cleocin is not recommended in the lincomycin-sensitive patient.

Please see following page for further prescribing information.

Cleocin® 150 mg capsules HCl

clindamycin HCl hydrate, Upjohn

[1] Reynolds, R. C., et al.: Bull. Johns Hopkins Hosp. 114:269, 1964
Data on file, Medical Research Department, The Upjohn Company

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Side effects: In studies of 1,416 patients involving 92 clinical investigators, side effects were reported in 8.2%.[1] Diarrhea or loose stools were noted in 3% of these cases (one patient with bloody stools). In a few instances, diarrhea lasted several days. A slightly higher incidence of diarrhea or loose stools has been reported by some investigators in subsequent studies.

Toxicity: No irreversible hematologic, renal, dermatologic, or neurologic abnormalities have been reported.[1] Transient leukopenia and eosinophilia have been observed. Elevations of alkaline phosphatase and serum transaminases were observed in a few instances. As with other antibiotics, periodic liver function tests and blood counts should be performed during prolonged therapy.

In acute sinusitis and other upper respiratory infections due to susceptible staphylococci, streptococci, and pneumococci.

Cleocin® HCl

clindamycin HCl hydrate, Upjohn

Each preparation contains:	Clindamycin HCl hydrate equivalent to clindamycin base
150 mg Capsules	150 mg
75 mg Capsules	75 mg

Cleocin (clindamycin, Upjohn) is a new semisynthetic antibiotic produced from the parent compound lincomycin and provides more *in vitro* potency, better oral absorption and fewer gastrointestinal side effects than the parent compound.

Cleocin HCl (clindamycin HCl hydrate) is indicated in infections of the upper and lower respiratory tract, skin and soft tissue, and, adjunctively, dental infections caused by gram-positive organisms which are susceptible to its action, particularly streptococci, pneumococci and staphylococci. As with all antibiotics, *in vitro* susceptibility studies should be performed.

CONTRAINDICATIONS: Patients previously found to be hypersensitive to this compound or to lincomycin.

WARNINGS: Safety for use in pregnancy not established. Not indicated in the newborn (infants below 30 days of age).

PRECAUTIONS: Prescribe with caution in atopic individuals. Perform periodic liver function tests and blood counts during prolonged therapy. The serum half-life in patients with markedly reduced renal function is approximately twice that in normal patients; hemodialysis and peritoneal dialysis do not effectively remove Cleocin from the blood. Therefore, with severe renal insufficiency, determine serum levels of clindamycin periodically and decrease the dose appropriately. Should overgrowth of nonsusceptible organisms—particularly yeasts—occur, take appropriate clinically indicated measures.

ADVERSE REACTIONS: Generally well tolerated in clinical efficacy studies. Side effects reported in 8.2% of 1,416 patients. Of the total, 6.9% reported gastrointestinal side effects and 1.3% reported other side effects. Diarrhea or loose stools were reported in 3%. *Gastrointestinal:* Symptoms included abdominal pain, nausea, vomiting and diarrhea or loose stools. In a few instances, diarrhea lasted for several days; one case of bloody stools was reported. *Hemotopoietic:* Transient neutropenia (leukopenia) and eosinophilia have been reported; relationship to therapy is unknown. No irreversible hematologic toxicity has been reported. *Skin and Mucous Membranes:* Skin rash and urticaria have been reported infrequently. *Hypersensitivity Reactions:* A few cases of hypersensitivity reaction have been reported. If hypersensitivity occurs, discontinue drug and have available the usual agents (epinephrine, corticosteroids, antihistamines) for emergency treatment. *Liver:* Although no direct relationship of Cleocin HCl (clindamycin HCl hydrate) to liver dysfunction has been noted and significance of such change is unknown, transient abnormalities in liver function tests (elevations of alkaline phosphatase and serum transaminases) have been observed in a few instances. Also, abnormal liver function test values at the beginning of therapy have returned to normal during therapy.

DOSAGE AND ADMINISTRATION: *Adults:* Mild to moderately severe infections—150 to 300 mg every 6 hours. Severe infections—300 to 450 mg every 6 hours.

Children: Mild to moderately severe infections—8 to 16 mg/kg/day (4 to 8 mg/lb/day) divided into three or four equal doses. Severe infections—16 to 20 mg/kg/day (8 to 10 mg/lb/day) divided into three or four equal doses.

Note: With β-hemolytic streptococcal infections, treatment should continue for at least 10 days to diminish the likelihood of subsequent rheumatic fever or glomerulonephritis.

SUPPLIED: *150 mg Capsules*—Bottles of 16's and 100's. *75 mg Capsules*—Bottles of 16's and 100's. *Sensitivity Disks*—2 μg. *Sensitivity Powder*—Vials.

For additional product information, see your Upjohn representative or consult package insert. MED B-4-S (LNU-3) JA71-1565

The Upjohn Company, Kalamazoo, Michigan 49001 **Upjohn**

THE BOOK CORNER

New books received are acknowledged in this section and such acknowledgment must be regarded as sufficient return for the courtesy of the sender. Selection will be made for review in the interests of our readers and as space permits. Books are listed with advance data supplied by publishers. Prices quoted are not guaranteed. For further information, address queries to the publishers. Books here listed are available for lending from the Denver Medical Society Library.

Recent Acquisitions

Care of The Geriatric Patient: Edited by E. V. Cowdry and Franz U. Steinberg. 4th ed. St. Louis, 1971, Mosby. 441 p. Price: $21.00, Review.

Clinical Neurology: By Frank A. Elliott. 2nd ed. Philadelphia, 1971, Saunders. 626 p. Price: $19.50.

Clinical Neurosurgery, v. 18: By Congress of Neurological Surgeons. Baltimore, 1971, Williams & Wilkins. 557 p. Price: $17.50.

Critical Surgical Illness: By James D. Hardy. Philadelphia, 1971, Saunders. 679 p. Price: $28.00.

Dermatology In General Medicine: By Thomas B. Fitzpatrick. New York, 1971, McGraw-Hill. 2048 p. Price: $42.50.

Diabetes: By USV Pharmaceutical Corporation. New York, 1970, USV. 92 p. Gift.

Doctor and Patient and The Law: By R. Crawford Morris and Alan R. Moritz. 5th ed. St. Louis, 1971, Mosby. 554 p. Price: $24.50, Review.

Early Child Care; The New Perspeetive: By Laura L. Dittman. New York, 1968, Atherton. 385 p. Price: Gift.

Foreign Travel Immunization Manual: By Hans H. Neumann. Springfield, Ill., 1971, Thomas. 56 p. Price: $3.75.

Fundamentals In Surgery: By Thomas F. Nealon, Jr. 2nd ed. Philadelphia, 1971, Saunders. 327 p. Price: $11.75.

Gastroenterologic Medicine: Edited by M. Paulson. Philadelphia, 1969, Lea & Febiger. 1627 p. Price: $60.00.

Genetic Disorders of The Endocrine Glands: By David L. Rimoin and R. Neil Schimke. St. Louis, 1971, Mosby. 383 p. Price: $32.50, Review.

Growth Control In Cell Cultures: By Ciba Foundation. Edinburgh, 1971, Churchill Livingstone. 275 p. Price: Gift.

Hazards of Medication: By Eric W. Martin. Philadelphia, 1971, Lippincott. 895 p. Price: $24.00.

Identification of Asthma: By Ciba Foundation. London, 1971, Churchill Livingstone. 179 p. Price: Gift.

Immunology: By Joseph A. Bellanti. Philadelphia, 1971, Saunders. 584 p. Price: $15.75.

Joslin's Diabetes Mellitus: Edited by Alexander Marble and others. 11th ed. Philadelphia, 1971, Lea & Febiger. 884 p. Price: $30.00.

Laboratory Guide to Parasitology: By Ralph W. Macy and Allen K. Berntzen. Springfield, Ill., 1971, Thomas. 292 p. Price: Gift.

Legal Medicine Annual, v. 2: Edited by Cyril H. Wecht. New York, 1971, Appleton. 480 p. Price: $12.50.

Lymphatic System of Female Genitalia: By Albert A. Plentl and E. A. Friedman. Philadelphia, 1971, Saunders. 257 p. Price: $14.00.

Management of Arterial Occlusive Disease: Edited by W. Andrew Dale. Chicago, 1971, Yearbook, 506 p. Price: $24.00.

Management of High-Risk Pregnanacy and Intensive Care of The Neonate: By S. Gorham Babson and Ralph C. Benson. 2d ed. St. Louis, 1971, Mosby. 313 p. Price: $16.50, Review.

Medical Parasitology: By Edward K. Markell and Marietta Voge. 3rd ed. Philadelphia, 1971, Saunders. 357 p. Price: Not Set.

The Neonate: By S. Gorham Babson and Ralph C. Benson. 2d ed. St. Louis, 1971, Mosby. 313 p. Price: $16.50, Review.

On Chloroform and Other Anaesthetics: Edited by Benjamin Richardson. London, 1958, John Churchill. 443 p. Price: Gift.

On The Inhalation of The Vapour of Ether: By John Snow. Philadelphia, 1947, Lea & Febiger. 88 p. Price: Gift.

Psychiatry, The Clergy and Pastoral Counseling: Edited by Dana L. Farnsworth and Francis J. Braceland. Collegeville, Minn., 1969, St. John's Univ. Press. 356 p. Price: $3.50.

Review of Hemodialysis for Nurses and Dialysis Personnel: By C. F. Gutch and Martha H. Stoner. St. Louis, 1971, Mosby. 221 p. Price: $7.50, Review.

The Role of Adenyl Cyclase and Cyclic 3', 5'—AMP In Biological Systems: By Fogarty International Center. Bethesda, Maryland, 1971, Fogarty International. 295 p. Price: Gift.

Shand's Handbook of Orthopaedic Surgery: By R. Beverly Raney, Sr. and H. Robert Brashear, Jr. 8th ed. St. Louis, 1971, Mosby. 543 p. Price: $15.50.

Symposium on Cholera: Edited by H. Fukumi and M. Ohashi. Tokyo, 1971, National Institute of Health. 276 p. Price: Gift.

Textbook on Respiratory Physiology: By N. D. Slonim and L. H. Hamilton, 2nd ed. 1971, Mosby. (This book is available at University of Colorado Medical Center Library.)

Two members of the faculty of the University of Colorado School of Medicine are authors of chapters in a new book, "Immunobiology: Current Knowledge of Basic Concepts in Immunology and Their Clinical Application", published by Sinauer Associates, Inc. of Stamford, Conn., in conjunction with *Hospital Practice* magazine.

Dr. C. Henry Kempe, professor and chairman of the CU Department of Pediatrics, contributes a chapter on "To Vaccinate or Not?", and Dr. Thomas E. Starzl, professor of surgery, writes on "The Current Status of Liver Transplantation".

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STANFORD UNIVERSITY SCHOOL OF MEDICINE

POSTGRADUATE MEDICAL EDUCATION COURSE

in

SURGERY

April 16 to April 23, 1972

Mauna Kea Beach Hotel
Kamuela, Hawaii

This course consists of a lecture series covering topics of current interest in the field of surgery. Arrival in Hawaii will be on Sunday, April 16, with departure on Sunday, April 23. Lectures will be held Monday through Friday from 9 a.m. to 12 noon, with a panel discussion on Saturday morning.

COURSE OUTLINE

- Emergency Care of Hand Injuries
- Advanced Techniques in Reconstruction of the Hand
- Skin Coverage
- Management of Injuries to the Face
- Organ Transplantation
- G. I. Hemorrhage
- Surgical G. I. Disorders in the Neonate
- Shock
- Cerebral Death
- Extracranial Occlusive Cerebrovascular Disease
- Renovascular Hypertension
- Management of Urinary Tract Infections
- Primary Breast Carcinoma
- Metastatic Breast Carcinoma

Panel Discussion on Trauma

An elective course in medical emergencies in surgical patients also will be available.

FACULTY

Robert A. Chase, M.D., Professor and Chairman, Department of Surgery, Stanford University School of Medicine

Roy B. Cohn, M.D., Walter Clifford Chidester and Elsa Rodney Chidester Professor of Surgery, Stanford University School of Medicine

Lawrence G. Crowley, M.D., Professor of Surgery, Stanford University School of Medicine

John W. Hanbery, M.D., Professor of Surgery and Head, Division of Neurosurgery, Stanford University School of Medicine

Thomas A. Stamey, M.D., Professor of Surgery and Head, Division of Urology, Stanford University School of Medicine

GENERAL ARRANGEMENTS

Registration: Tuition for the course is $275 which must accompany the application. Registration is limited to 68 M.D.s and application must be received no later than February 15, 1972.

Hotel: Room reservations for Mauna Kea Beach Hotel will be made through the Office of Postgraduate Medical Education at Stanford and will be confirmed upon receipt of $100 deposit. (Ocean-view room, 7 nights, double occupancy, Mod. Am. Plan, including cocktail party—$600)

Travel: Round-trip transportation SFO to Kamuela to SFO at the special group tariff of $146 (plus tax, excluding airport transfer, and subject to gov't authority) will be arranged through the official travel agent: Leo T. Sides, Leo T. Sides Travel Service, 76 Stanford Shopping Center, Palo Alto, California 94304, (415) 321-1111. The travel service will contact registrants to confirm travel arrangements and coordinate any desired pre- and post-meeting travel.

APPLICATION FORM

POSTGRADUATE COURSE IN SURGERY
April 16-23, 1972

Course Tuition: $275
Room Deposit: $100

NAME_____
Last First Middle

ADDRESS_____
Street City State Zip Code

DAYTIME PHONE_____

MEDICAL SCHOOL_____ Year_____ Specialty_____

_____ Enclosed is $375 for full tuition and room deposit.

_____ I wish special round-trip group air transportation SFO to Kamuela to SFO.

_____ I am interested in arranging pre- or post-meeting travel (inter-island/Orient/Pacific) with Leo T. Sides Travel Service, Palo Alto, California

Please make your check payable to STANFORD UNIVERSITY SCHOOL OF MEDICINE and mail to the Office of Postgraduate Medical Education, Stanford University School of Medicine, M121, Stanford, California 94305. For further information, telephone (415) 321-1200, Extension 5594.

APPLICATION MUST BE RECEIVED BY FEBRUARY 15

MEETINGS

Division of Postgraduate Medical Education
University of Utah College of Medicine

FAMILY PRACTICE REFRESHER COURSE
C'est Bon Convention Center, Park City, Utah
January 10-14, 1972

Fee: $105.00.

Credit (AAGP): 35 hours.

Morning lectures will cover the areas of medicine, pediatrics, obstetrics and gynecology, surgery, and psychiatry. Small group discussions and clinical demonstrations will be held in the early evenings.

Afternoons will be free for skiing or other recreation. Wives' activities as well as special activities to which wives are invited are also included in the program.

13TH ANNUAL OBSTETRICS AND GYNECOLOGY COURSE
C'est Bon Convention Center, Park City, Utah
February 3-5, 1972

Fee: $65.00.

Credit (AAGP): 10 hours.

Mornings will be devoted to lectures; afternoons will be free for skiing or other recreational activities.

17TH ANNUAL ANESTHESIOLOGY COURSE
C'est Bon Convention Center, Park City, Utah
February 19-22, 1972

Fee: $85.00.

Credit (AAGP): 19 hours.

Topics of formal presentations and panel discussions will be Hypnosis in Anesthesiology, Use of Regional Anesthesia, and Treatment of Pain Problems.

For further information about these meetings, write: Postgraduate Medical Education Section, Department of Community and Family Medicine, 50 North Medical Drive, Salt Lake City, Utah 84112.

Intermountain Pediatric Society
ANNUAL CONFERENCE
Caesar's Palace, Las Vegas, Nevada
March 27-29, 1972

The topic for the meetings is Ambulatory Pediatrics. Registration is open to all interested physicians. For further information, contact: Elbert M. Dansie, MD, 745 East Third South, Salt Lake City, Utah 84102.

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Here's great news about a Disability Income Plan that can pay you up to $1,000.00 a month in TAX-FREE CASH when you're sick or hurt and can't work.

This remarkable plan is offered to you at a special savings as a member of the Colorado Medical Society. It is underwritten by Mutual of Omaha, the leader in its field.

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Thiamine mononitrate	15 mg
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Folic acid	0.5 mg
Ascorbic acid	500 mg

Indications: Nutritional supplementation in conditions in which water-soluble vitamins are required prophylactically or therapeutically.
Warning: Not intended for treatment of pernicious anemia or other primary or secondary anemias. Neurologic involvement may develop or progress, despite temporary remission of anemia, in patients with pernicious anemia who receive more than 0.1 mg of folic acid per day and who are inadequately treated with vitamin B_{12}.
Dosage: 1 or 2 tablets daily, as indicated by clinical need.
Available: In bottles of 100.

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With balanced, high potency B-complex and C vitamins.
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Lovelace Foundation for Medical Education
OFFICE ENDOCRINOLOGY FOR THE FAMILY PHYSICIAN
Lovelace-Bataan Medical Center, Albuquerque, New Mexico
March 24-25, 1972

Credit: AAGP applied for.

For further information, write: Frank M. Mowry, MD, Director of Medical Education, Lovelace Foundation for Medical Education and Research, 5200 Gibson Boulevard, S.E., Albuquerque, New Mexico 87108.

American Cancer Society
CANCER SEMINAR
Flamingo Hotel, Las Vegas, Nevada
April 10-11, 1972

For further information, write: Cancer Seminar, 301 South Highland Drive, Las Vegas, Nevada 89106.

Dallas Southern Clinical Society
41ST ANNUAL SPRING CLINICAL CONFERENCE
Statler Hilton, Dallas, Texas
March 20-22, 1972

Credit: AAGP: 19 hours.

For additional information, contact: Dallas Southern Clinical Society, Medical Arts Building, Dallas, Texas 75201.

American Diabetes Association
19th Postgraduate Course
DIABETES IN REVIEW: CLINICAL CONFERENCE, 1972
Sheraton-Four Ambassadors Hotel, Miami, Florida
January 24-26, 1972

Fee: $100 for members of the American Diabetes Association.
$125 for nonmembers.
$25 for residents, interns, and fellows in a training status with less than five years of formal training from outside the Miami area.
No charge for medical students, space permitting.

Credit: AAGP applied for.

For further information, write: American Diabetes Association, 18 East 48th Street, New York, New York 10017.

American Cancer Society, Kansas Division
24th Annual Midwest Cancer Conference for Physicians
CANCER PROGRESS IN THE '70's
Broadview Hotel, Wichita, Kansas
March 17-18, 1972

Free Registration.

For further information, contact: Paul A. Baumann, MD, Chairman, 1972 Midwest Cancer Conference, American Cancer Society, Kansas Division, Inc., 824 Tyler Street, Topeka, Kansas 66612.

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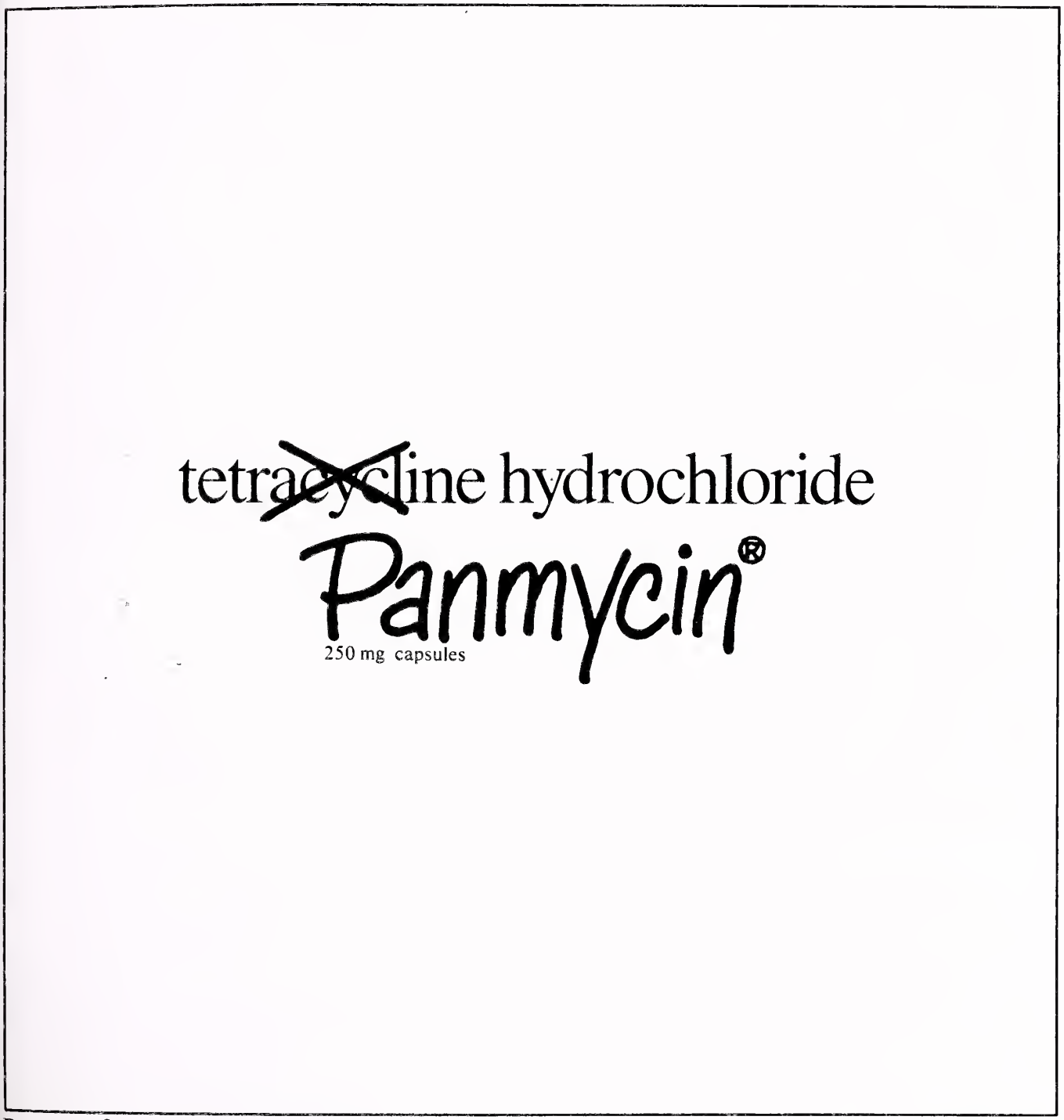

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When irritable colon feels like this

...in the presence of spasm or hypermotility, gas distension and discomfort, **KINESED®** provides more complete relief:

- ☐ **belladonna alkaloids—for the hyperactive bowel**
- ☐ **simethicone—for accompanying distension and pain due to gas**
- ☐ **phenobarbital—for associated anxiety and tension**

Composition: Each chewable, fruit-flavored, scored tablet contains: 16 mg. phenobarbital (warning: may be habit-forming); 0.1 mg. hyoscyamine sulfate; 0.02 mg. atropine sulfate; 0.007 mg. scopolamine hydrobromide; 40 mg. simethicone.
Contraindications: Hypersensitivity to barbiturates or belladonna alkaloids, glaucoma, advanced renal or hepatic disease.
Precautions: Administer with caution to patients with incipient glaucoma, bladder neck obstruction or urinary bladder atony. Prolonged use of barbiturates may be habit-forming.
Side effects: Blurred vision, dry mouth, dysuria, and other atropine-like side effects may occur at high doses, but are only rarely noted at recommended dosages.
Dosage: Adults: One or two tablets three or four times daily. Dosage can be adjusted depending on diagnosis and severity of symptoms. Children 2 to 12 years: One half or one tablet three or four times daily. Tablets may be chewed or swallowed with liquids.

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and the Latin **sedatus,**
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Spring peeper (tree frog, *Hyla crucifer*): this small amphibian can expand its throat membrane with air until it is twice the size of its head.

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When girth gets out of control, TEPANIL can provide sound support for the weight control program you recommend. TEPANIL reduces the appetite—patients enjoy food but eat less. Weight loss is significant—gradual—yet there is a relatively low incidence of CNS stimulation.

Contraindications: Concurrently with MAO inhibitors, in patients hypersensitive to this drug; in emotionally unstable patients susceptible to drug abuse.

Warning: Although generally safer than the amphetamines, use with great caution in patients with severe hypertension or severe cardiovascular disease. Do not use during first trimester of pregnancy unless potential benefits outweigh potential risks.

Adverse Reactions: Rarely severe enough to require discontinuation of therapy, unpleasant symptoms with diethylpropion hydrochloride have been reported to occur in relatively low incidence. As is characteristic of sympathomimetic agents, it may occasionally cause *CNS effects* such as insomnia, nervousness, dizziness, anxiety, and jitteriness. In contrast, CNS depression has been reported. In a few epileptics an increase in convulsive episodes has been reported. Sympathomimetic *cardiovascular effects* reported include ones such as tachycardia, precordial pain, arrhythmia, palpitation, and increased blood pressure. One published report described T-wave changes in the ECG of a healthy young male after ingestion of diethylpropion hydrochloride, this was an isolated experience, which has not been reported by others. *Allergic phenomena* reported include such conditions as rash, urticaria, ecchymosis, and erythema. *Gastraintestinal effects* such as diarrhea, constipation, nausea, vomiting, and abdominal discomfort have been reported. Specific reports on the hematopoietic system include two each of bone marrow depression, agranulocytosis, and leukopenia. A variety of miscellaneous adverse reactions have been reported by physicians. These include complaints such as dry mouth, headache, dyspnea, menstrual upset, hair loss, muscle pain, decreased libido, dysuria, and polyuria.

Convenience of two dosage forms. TEPANIL Ten-tab tablets: One 75 mg. tablet daily, swallowed whole, in midmorning (10 a.m.); TEPANIL: One 25 mg. tablet three times daily, one hour before meals. If desired, an additional tablet may be given in midevening to overcome night hunger. Use in children under 12 years of age is not recommended.

1-3325 (2876)

Merrell

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Painful night leg cramps...

unwelcome bedfellow for any patient– including those with arthritis, diabetes or PVD

- ☐ Prevents painful night leg cramps
- ☐ Permits restful sleep
- ☐ Provides simple convenient dosage — usually just one tablet at bedtime

Prescribing Information—Composition: Each white, beveled, compressed toblet contains: Quinine sulfate, 260 mg., Aminophylline, 195 mg. **Indications:** For the prevention and treatment of nocturnal and recumbency leg muscle cramps, including those associated with arthritis, diabetes, varicose veins, thrombophlebitis, arteriosclerosis and static foot deformities. **Contraindications:** Quinamm is contraindicated in pregnancy because of its quinine content. **Precautions/Adverse Reactions:** Aminophylline may produce intestinal cramps in some instances, and quinine may produce symptoms of cinchonism, such as tinnitus, dizziness, and gastrointestinal disturbance. Discontinue use if ringing in the ears, deafness, skin rash, or visual disturbances occur. **Dosage:** One tablet upon retiring. Where necessory, dosage may be increased to one tablet following the evening meal and one tablet upon retiring. **Supplied:** Bottles of 100 ond 500 tablets.

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Trademark: Quinamm

Quinamm

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Specific therapy for night leg cramps.

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E-Mycin®

(erythromycin, Upjohn)

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Call it what you will, it may be premalignant.

Before

3/29/67 Before therapy with 5%-FU cream. Patient P. T shows a moderately severe solar keratotic involvement. Note residual scarring from the previous cryosurgical and electrosurgical procedures on forehead and ridge of nose adjacent to periauricular area.

After

6/12/67 Seven weeks after cessation of therapy. Reactions have subsided. Residual scarring is not seen except for that due to prior surgery. Inflammation has disappeared and face is clear of keratotic lesions.

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and Efudex® (fluorouracil) 5% cream can resolve it.

Call it actinic, solar or senile keratoses, many regard it as "precancerous."[1,2]

Topical fluorouracil, considered by some dermatologists to be a major advance in the treatment of multiple solar keratoses,[3,4] offers the physician a relatively inexpensive alternative to cryosurgery, electrodesiccation and cold knife surgery. Of the topical fluorouracils available, only Efudex offers 2% and 5% solution and 5% cream formulations—formulations that have proved effective in the treatment of these mutliple lesions.

Usual duration of therapy, 2 to 4 weeks.

Studies showed that with the 2% and 5% Efudex preparations, the usual duration of therapy was only 2 to 4 weeks.[5] Other studies with topical fluorouracil revealed that when concentrations of less than 2% were used, significant numbers of lesions recurred.[6]

Treats the lesions you can't see, too.

Numerous lesions, not apparent prior to 2% and 5% Efudex therapy, manifested themselves by definite reactions, while intervening skin remained relatively unaffected.[5] The early eradication of these subclinical lesions (which may otherwise have undergone further progression) probably accounts for the reduced incidence of future solar keratoses in patients treated with topical fluorouracil—especially with 5% concentrations.[6]

How to identify solar keratoses.

Typically, the lesion—a flat or slightly elevated brown to red-brown papule—is dry, rough, adherent and sharply defined. Multiple lesions are the rule.

Predictable therapeutic response.

The response to a typical course of Efudex therapy is usually characteristic and predictable. After 3 or 4 days of treatment, erythema begins to appear in the area of keratoses. This is followed by a moderate to intense inflammatory response, scaling and occasionally moderate tenderness or pain. The height of this response generally occurs two weeks after the start of therapy and then begins to subside as treatment is stopped. Within two weeks of discontinuing medication, the inflammation is usually gone. Lesions that do not respond should be biopsied.

References: 1. Allen, A. C.: *The Skin, A Clinicopathological Treatise*, ed. 2, New York, Grune & Stratton, 1967, p. 842. 2. Dillaha, C. J.; Jansen, G. T, and Honeycutt, W. M.: "Treatment of Actinic Keratoses with Topical Fluorouracil," in Waisman, M. (ed.): *Pharmaceutical Therapeutics in Dermatology*, Springfield, Ill., Charles C Thomas, 1968, p. 92. 3. Belisario, J. C.: *Cutis, 6*:293, 1970. 4. Sams, W. M.: *Arch. Derm., 97*:14, 1968. 5. Data on file, Hoffmann-La Roche Inc., Nutley, New Jersey. 6. Williams, A. C., and Klein, E.: *Cancer, 25*:450, 1970.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Multiple actinic or solar keratoses.

Contraindications: Patients with known hypersensitivity to any of its components.

Warnings: If occlusive dressing used, may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.

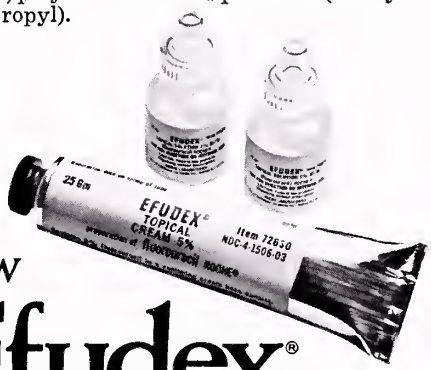
Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.

Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with nonmetal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.

How Supplied: Solution, 10-ml drop dispensers—containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)aminomethane, hydroxypropyl cellulose, parabens (methyl and propyl) and disodium edetate.

Cream, 25-Gm tubes—containing 5% fluorouracil in a vanishing cream base consisting of white petrolatum, stearyl alcohol, propylene glycol, polysorbate 60 and parabens (methyl and propyl).



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cream/solution

MEDICAL SCHOOL NOTES

University of Colorado Medical Center

Dr. Robert A. Aldrich, Uinversity of Colorado vice president for health affairs, has been elected as a vice president and member of the executive council of the World Society for Ekistics, international organization for the study of man in his urban environment. The society limits its membership to 200 world leaders in a variety of fields related to human settlements of the past, present, and future and their patterns of living and problems. The society conducts an international seminar in Greece each summer with participants drawn from world leaders in such fields as architecture, city planning, health, geography, law, urban studies, public administration, economics, business and industry, education, engineering, political science, anthropology, banking, sociology, and psychiatry.

* * * * *

Dr. Fredrick H. Good, Denver surgeon, has been promoted to clinical professor of surgery emeritus in the University of Colorado School of Medicine. He retires from the active volunteer faculty after 33 years of service to the Medical Center. In addition to his faculty duties, Dr. Good has beeen an active member of the Colorado Medical Society, whose highest honor, the Certificate of Service, he received in 1959. He also received the school's distinguished service award in 1963. He has served as president of both the state and national Blue Shield programs.

* * * * *

Dr. Joseph H. Holmes, professor and head of the Division of Renal Disease at the University of Colorado School of Medicine since 1960, has been given a concurrent appointment as professor of radiology. A member of the medical faculty since 1950, Dr. Holmes is one of the nation's pioneers in the development of diagnostic ultrasound. After earning his MD degree in 1934 from Western Reserve University, he began his career in academic medicine with an appointment as an instructor in physiology at Columbia in 1937 and was promoted to assistant professor in 1941, a position which he held until 1947. He took a DMedSc in internal medicine from Columbia University in 1935.

* * * * *

Dr. Solomon Papper, chief of the internal medicine service at General Rose Memorial Hospital and a distinguished figure in American medicine, has been appointed professor of medicine at the University of Colorado School of Medicine, a post which he will fill along with his position at General Rose. A prominent contributor to the field of internal medicine, Dr. Papper has held appointments on the faculties of the Harvard Medical School, University of Cincinnati, Tufts University, Medical College of Virginia, University of New Mexico, and University of Miami.

* * * * *

Dr. Stuart A. Schneck, who joined the medical faculty in 1959, has been promoted to professor of neurology and pathology in the University of Colorado School of Medicine. From 1961 to 1963 Dr. Schneck, who received his MD in 1953 from the University of Pennsylvania, held a special U. S. Public Health Service fellowship in neuropathology at the Columbia University College of Physicians and Surgeons.

* * * * *

Twenty-eight students of the University of Colorado School of Medicine were presented with awards and prizes for academic achievements at the school's annual Student Honors Convocation on December 7, 1971.

University of Nevada School of Medical Sciences

The first VA medical facility in Southern Nevada, an out-patient clinic of the Reno Veterans Administration Hospital, will be opened by July 1, 1972, in Las Vegas. The area's veteran population of 3,000 who have service-connected injuries and some 4,500 who are veterans of the Vietnam War will be able to obtain VA medical care in Las Vegas.

The clinic will provide diagnosis, treatment of patients who do not require hospitalization, and follow-up therapy after hospital treatment elsewhere. Planning and development of the clinic by VA officials, as well as staffing, patient care, and research, will be coordinated with the Dean's Committee of the School of Medical Sciences.

Dr. George T. Smith, dean of the School of Medical Sciences, who described the clinic as part of their concept of a "medical school without walls", said that it would provide a "golden opportunity for our students to be involved in summer clerkships in Las Vegas, as many have requested, and to help provide improved, more accessible care for veterans. This is an example of our partnership in medical care and education."

University of New Mexico School of Medicine

The leukemia-lymphoma program at the University of New Mexico School of Medicine has progressed rapidly during its first year of operation. The program is a member of the Southwest Cancer Chemotherapy group, which is composed of 19 major medical centers throughout the United States and Canada, working together to keep pace with rapid developments in the use of drugs to treat leukemia and other cancers of the blood and blood-forming organs.

Several hundred New Mexicans suffer from one form or another of leukemia or lymphoma. Within the last five years their lives have been

greatly extended due to the work done at the school in this field. The current adult remission rate for leukemia is 60 per cent as opposed to 24 per cent in 1967. The remission rate is nearly 100 per cent in children. Localized Hodgkin's disease can now be cured by radiotherapy, and a new four-drug combination offers the possibility of cure even in far advanced Hodgkin's disease.

A postcard system has been set up by the medical school so that patients in other parts of the state can return home and get laboratory tests there, fill in the information on the card, and mail it to the medical school so they can be checked without having to return to Albuquerque so often.

Financial support comes from a multitude of sources. The New Mexico Regional Medical Program as well as the National Cancer Institute have given major support. Private donations have also been important in funding the program. One anonymous individual from Albuquerque donated $12,000 to help support salaries of two Leukemia Fellows. The Sandia Wives Officers' Club is supplying a pediatric social worker. Two drug companies are providing unlimited free medication for children with leukemia.

* * * * *

Dr. A. Earl Walker, visiting professor of neurosurgery, is working on a contract from the National Institutes of Health to determine criteria upon which a doctor may base the death of the brain. Most patients are now certified as dead when their heart stops beating; and with the advances in life-sustaining technics, there has been a great deal of concern that some patients' hearts are being kept alive when they will never be able to resume consciousness, or even existence independent of resuscitative apparatus. Doctors need to know if the patient's brain has been irreversibly destroyed to the extent that he could never again "live" in the common sense of the term, so that they could pronounce the patient dead and dispense with the use of specialized equipment.

Criteria being evaluated to determine when the brain is dead include a clinical examination for neurological functions, tests of reflex actions, response to certain stimuli, examination of brain waves, testing for certain constituents of the blood which may indicate that the brain is not functioning, and determining the amount of oxygen the brain is using. These criteria are currently being tested in a pilot study at eight medical centers throughout the United States.

Dr. Walker, who received his MD degree from the University of Alberta in Canada, has been a Rockefeller Fellow at Yale University, the University of Amsterdam, and Université Libre de Bruxelles. He received an honorary fellowship in 1970 from the Royal College of Surgeons of Edinburgh and has also been an Eliza Savage Fellow with the Australian Postgraduate Federation in Medicine. He has held faculty positions at Johns Hopkins University, the University of Chile Medical School, Guy's Hospital in London, and the Massachusetts General Hospital in Boston.

University of Utah Medical Center

The Hans Hecht Memorial Lectureship, in memory of Dr. Hans Hecht, a former professor of medicine and the first L. E. Viko Professor of Cardiology at Utah, who died August 12, has been established at the University of Utah College of Medicine. The annual lectureship, sponsored by the Division of Cardiology, is designed to bring top physicians and scientists to the University to lecture in the field af cardiovascular research.

Contributions are being accepted for the fund and should be sent to the H. H. Hecht Lectureship Fund, University of Utah, Salt Lake City, Utah 84112.

* * * * *

Dr. Maxwell M. Wintrobe, distinguished professor of medicine at the University of Utah College of Medicine, was installed on December 6 as the 14th President of the American Society of Hematology. The ceremony took place at the San Francisco Hilton where the Society held its 14th Annual Meeting.

Dr. Wintrobe, an internationally recognized authority in the field of hematology, came to the University of Utah College of Medicine in 1944 from Johns Hopkins University to organize a department of internal medicine. He is the author of *Clinical Hematology,* the standard textbook for the study of hematology.

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(urethritis, cervicitis, proctitis when due to susceptible strains of N. gonorrhoeae)

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Indications: Acute gonorrheal urethritis and proctitis in the male and acute gonorrheal cervicitis and proctitis in the female when due to susceptible strains of *N. gonarrhaeae*.

Contraindications: Contraindicated in patients previously found hypersensitive to Trobicin. Not indicated for the treatment of syphilis.

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Warnings: Antibiotics used to treat gonorrhea may mask or delay the symptoms of incubating syphilis. Patients should be carefully examined and monthly serological follow-up for at least 3 months should be instituted if the diagnosis of syphilis is suspected.

Safety for use in infants, children and pregnant women has not been established.

Precautions: The usual precautions should be observed with atopic individuals. Clinical effectiveness should be monitored to detect evidence of development of resistance of *N. gonorrhaeae*.

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A single two-gram injection produces peak serum concentrations averaging about 100 mcg/ml in one hour (average serum concentrations of 15 mcg/ml present 8 hours after dosing)

Note: Antibiotics used in high doses for short periods of time to treat gonorrhea may mask or delay the symptoms of incubating syphilis. Since the treatment of syphilis demands prolonged therapy with any effective antibiotic, and since Trobicin is not indicated in the treatment of syphilis, patients being treated for gonorrhea should be closely observed clinically. Monthly serological follow-up for at least 3 months should be instituted if the diagnosis of syphilis is suspected. Trobicin is contraindicated in patients previously found hypersensitive to it.

*Data compiled from reports of 14 investigators. **Diagnosis was confirmed by cultural identification of *N. gonorrhoeae* on Thayer-Martin media in all patients. Criteria for cure: negative culture after at least 2 days post-treatment in males and at least 7 days post-treatment in females. Any positive culture obtained post-treatment was considered evidence of treatment failure even though the follow-up period might have been less than the periods cited above under "criteria for cure" except when the investigator determined that reinfection through additional sexual contacts was likely. Such cases were judged to be reinfections rather than relapses or failures. These cases were regarded as non-evaluatable and were not included. JA72 1848-6

globin, hematocrit and creatinine clearance; elevation of alkaline phosphatase, BUN and SGPT. In single and multiple-dose studies in normal volunteers, a reduction in urine output was noted. Extensive renal function studies demonstrated no consistent changes indicative of renal toxicity.

Dosage and administration: Keep at 25°C and use within 24 hours after reconstitution with diluent.
Male—single 2 gram dose (5 ml) intramuscularly. Patients with gonorrheal proctitis and patients being re-treated after failure of previous antibiotic therapy should receive 4 grams (10 ml). In geographic areas where antibiotic resistance is known to be prevalent, initial treatment with 4 grams (10 ml) intramuscularly is preferred.
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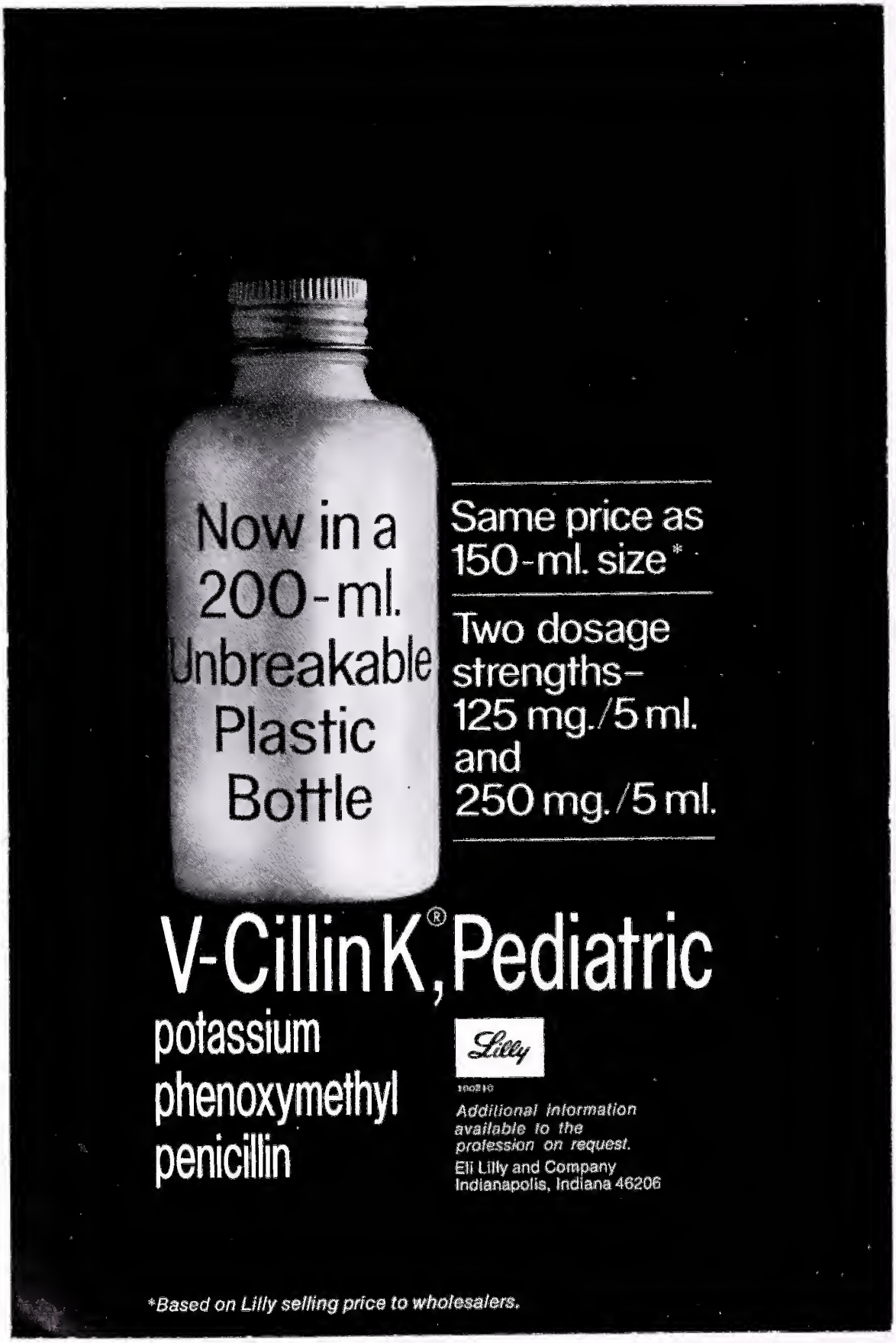
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Utah Professional Review Organization

IN THE SHORT TIME of a few months the Utah Professional Review Organization (UPRO) has emerged from obscurity to a status of meaningful importance to every Utah physician. This new organization represents their efforts to read the signs of the times and respond appropriately. They realize there is no past experience upon which to base the many important decisions of the present which will influence so greatly their practice in the future.

Like most of their alert and thoughtful colleagues throughout the country, their basic concern is for the welfare of their patients. Despite changing patterns dictated by our "consumer-provider" oriented society, they are reluctant to abrogate their professional prerogatives to considerably less qualified non-professionals with high sounding phrases and plans which they proclaim with dismaying regularity.

Possessing then the fierce desire to serve their patients well and to maintain the reasonable control of the delivery of medical care, the physicians of Utah under the guidance of their officers, trustees, and delegates to their House, established the Utah Professional Review Organization. Its objectives and purposes are to promote quality medical care and the effective and efficient delivery of health care services. The means by which this will be effected are: (1) quality evaluation of all physicians' services according to guidelines established by peer committees with representation from all of the various specialties; (2) physician education to correct quality deficiencies identified by the review process. Great stress is laid on the fact that the correction process is through educational means and not punitive measures; (3) on-site concurrent review of hospital and extended care facility care with concern for both quality audit and appropriate utilization. This will eliminate retroactive review which is considerably less effective and which generates frustrating claim rejections; (4) ongoing review of the effectiveness of physician education technics.

The basic concepts of UPRO's program are not completely unique as evidenced by the various programs proposed in the many foundations, councils, organizations, etc. being established throughout the country. The specific methods by which UPRO plans to achieve its purposes are felt, however, to be truly unique. The reasonableness of these methods has resulted in generally favorable physician acceptance of the UPRO program.

Initial funding for UPRO was received from the general funds of the Utah State Medical Association. Supplemental funding was subsequently received through an EMCRO grant awarded by the National Center for Health Services Research and Development (Department of HEW). While these funds were specifically earmarked for planning and development, UPRO has made significant strides in the actual implementing of on-site concurrent hospital review, on a pilot basis, in one of the major hospitals of Salt Lake City. Negotiations presently in process most likely will result in UPRO's

emergence into a full-blown review program involving a group of over 100,000 persons. This will, of course, extend the Organization's operation into a multi-city, multi-hospital situation.

Though its beginnings were modest, UPRO's progress has been impressive and the prospects for its further growth and accomplishments are excellent indeed. The reason for this is the determined dedication of Utah physicians to function appropriately in their profession to the end that their patients will receive maximal quality medical care delivered in an efficient manner. Despite myriad charges to the contrary, physicians' prime concerns are for their patients. Every means to safeguard the traditional physician-patient relationship, on a mutually free choice basis, is worthy of pursuance. UPRO is a vital approach to safeguard this principle.

Hoyt W. Brewster
Executive Director,
Utah State Medical Association

Categorization of Emergency Facilities

In order to assure that the ill and injured receive the benefit of appropriate and uninterrupted care, from the identification of a need through definitive care, it is essential that the entire emergency care system functions effectively. A breakdown at any point in the chain of evacuation will nullify or dilute the satisfactory delivery of medical service.

The ultimate development of a system for the delivery of medical care will require a fully integrated system. The most sophisticated emergency transportation system can be wasted if the patient is delivered to an emergency facility which is not staffed or equipped to deliver needed care. The chances of harmful delay are magnified if the planning of emergency care stops with the transportation system. The concept of "categorization of emergency facilities" arose with an understanding of this need.

Over the past several years many diverse groups have set up systems of categorization which fulfilled their individual needs and usually paralleled the efforts of others. In March, 1971, the American Medical Association's Council on Emergency Care sponsored a workshop conference including representatives of most of the groups interested in this concept and the results of their deliberations are now in print.

Any system of categorization is useful only if it becomes a tool allowing for more rational community planning to make adequate emergency care promptly available to an ill or injured individual. Properly used, it can be a guide for individual hospitals to upgrade facilities to conform with their positions in the total community picture. It can also avoid unnecessary duplication of scarce facilities and personnel.

In order to utilize a system of categorization of emergency facilities, several important steps must be taken by any planning group. A community-wide survey of presently available facilities is an essential. This survey must include hospital emergency departments and the necessary back-up of in-hospital equipment and personnel to care for any emergency situations that may arise. It must also include a survey of the ambulance service available and the communication facilities available between hospitals, between law enforcement agencies and ambulances, and between ambulances and emergency facilities. The availability of physicians and allied health personnel must also be studied.

The most important ingredient in any community planning must be the individual hospital's willingness to cooperate in a method to best utilize scarce personnel and equipment. With the ever-increasing cost of specialized equipment and personnel, a plan should look to eliminating unnecessary duplication and to taking the best advantage of the resources of the community. The amazing success of the military effort in promptly caring for their ill and injured is an excellent example of the usefulness of an ordered system including adequate communication, availability of trained personnel and transportation, and a regulation system which assures that the injured individual is

promptly delivered to an installation which has ample equipment and trained personnel available for the specific problem.

It is important to have a nationally acceptable terminology and set of basic criteria which can be used as an instrument for planning by any interested community whether this community be a city, county, region, state, or group of states. Four specific categories of emergency facilities have been recommended, each one having a progressively lesser capability in certain areas either in equipment or personnel. "Comprehensive Emergency Service" would be the major installation and very few institutions would fit into this category since this would require a 24-hour in-house coverage by specialists in at least their third year of training and the supporting equipment to allow the delivery of most of the sophisticated technics necessary for major treatment and rehabilitation. The next category, "Major Emergency Service", would include most of the well-equipped and well-staffed hospitals capable of handling most emergency problems and in many areas this would be the top category available. The remaining categories have been designated "General Emergency Service" and "Basic Emergency Service".

For completeness a fifth category may be included and designated a "Resuscitation and Referral Facility". This would not be, as a general rule, a hospital since it is felt that no hospital should be designated for emergency treatment unless a physician is available. This facility would tend to complete the community picture on emergency care and could include well-equipped industrial clinics, airport and arena emergency dispensaries, or even a well-equipped ambulance. This facility would have to be staffed by a minimum of two trained personnel with the capability to resuscitate and maintain most life-threatening problems and with the ability to obtain direct or indirect assistance from a physician and to provide stand-by care prior to arranging for expeditious transfer to an appropriate higher category facility.

The report of the 1971 AMA workshop includes staffing and equipment requirements for each category and these should be adjusted by regional planning groups to fit the available resources in individual areas.

Andrew C. Ruoff, III, MD
University of Utah
College of Medicine

Utah's Scientific Editors

IT TAKES MORE THAN authors and printers to make a medical journal, but often the intervening steps, quietly performed by a number of people, are simply taken for granted.

In Utah we are fortunate in having three associate scientific editors for the *Rocky Mountain Medical Journal* and it seems only appropriate at the time of the Utah issue to acknowledge their excellent services. Drs. Lewis Barton and W. Knox Fitzpatrick, Jr., have for several years devoted many hours of their time to reviewing manuscripts for possible publication in the *Journal*. Their loyality, skill, and devotion are very much appreciated. A recent addition to our editorial group is Dr. Howard Wilcox, whose interest in medical history will undoubtedly enrich these pages.

An editorial board must perform more than a yes-no function. We feel that assistance and advice in the preparation and revision of manuscripts are vital editorial functions. We also think that the outright solicitation of meritorious articles is not foreign to the concept of editorial responsibility.

Finally, we believe that regional medical journals still have a valuable and useful place in the scheme of things, providing, as they do, a local color and flavor that is unobtainable in any other way. Their demise, which would leave only a vast array of national specialty journals, would be a sad event indeed.

A.E.L.*

*Scientific Editor, Utah Section of the RMMJ.

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Selective coronary arteriography*

A clinical review of 629 patients

H. V. Liddle, MD, Salt Lake City, Utah

An insidious but epidemic disease can be more accurately recognized.

THE INCIDENCE OF coronary artery disease has increased in the past twenty years, and now accounts for more deaths in this country than any other disease. Historically, the diagnosis of coronary disease has been based upon a history of characteristic pain and upon electrocardiographic changes, both of which observations are highly interpretive and frequently in error. Approximately 40 per cent of coronary deaths occur with the initial infarct, and nearly 20 per cent of myocardial infarctions are silent. It is, therefore, important that an available dependable and objective method of diagnosis of this disease be established.

In 1962, Sones[1] described an arteriographic technic for diagnosis of coronary disease which has been widely applied in the past nine years. Nonetheless, there remains great reluctance among many physicians to utilize this technic. The purpose of this report is to document the personal experience of the author in the clinical evaluation of patients with chest pain and with the performance of selective coronary arteriography in these patients. The report will show the fallibility of the clinical diagnosis of coronary artery disease, and will document the reliability and safety of selective coronary arteriography.

*From the Rumel Chest Clinic. Dr. Liddle is Assistant Clinical Professor of Surgery, University of Utah Medical School, and Latter-day Saints Hospital.

Material and Methods

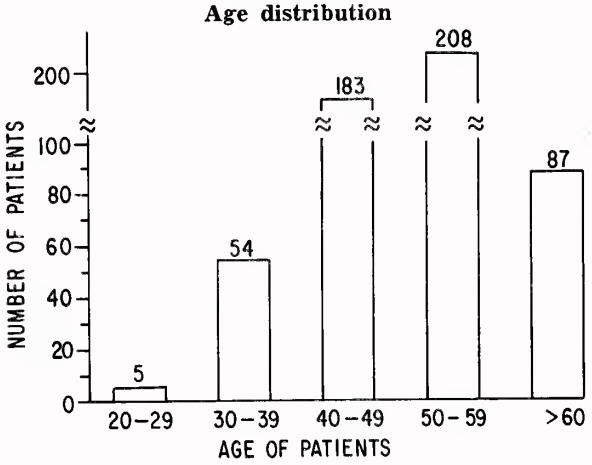
Between June 1965 and September 1970, 629 patients were interviewed and subjected to electrocardiographic study on the basis of which clinical evaluation a pre-arteriographic diagnosis was recorded. Patients were then hospitalized for arteriographic evaluation using the Sones catheter. The photographic technics utilized consisted of 16mm filming with shell-burst film through a General Electric image amplifier, with a six inch magnified field. The movies were obtained at 60 frames per second and injections in the coronary arteries were recorded before and after sublingual nitroglycerin. The contrast material used initially was 70 per cent hypaque and more recently has been 76 per cent renografin.

Classification of the severity of coronary artery disease was based upon an estimate of lumenal narrowing. Disease was considered absent if vessels were elastic and of uniform caliber. Between 0 and 30 per cent lumenal narrowing was considered early and of no consequence with respect to blood flow. Obstruction of 30-70 per cent was considered moderate and arterial obstruction of 70-90 per cent was considered severe. Over 90 per cent obstruction was classified as occlusive from the point of view of effective distal perfusion pressure.

Of the 629 patients who were studied, 83 patients had rheumatic heart disease and will be dealt with as a separate group. In nine patients (1.4 per cent) arteriographic studies were unsatisfactory due either to severe aortic valvular disease (four patients) or technically difficult peripheral arterial anatomy (five patients). The remaining 537 patients form the basis for this report.

The ages of these patients varied from 24 to 76 years, and the majority of the patients were between 40 and 60 years. A significant number of patients (16 per cent) were over 60 years of age. See Table 1.

TABLE 1
Age distribution



These 537 patients include 412 men and 125 women. Fifty-six of the women (45 per cent) were premenopausal, and three (5.3 per cent) of these women had arteriographically significant disease. This figure is artificially increased by the selected nature of the patients in the study.

Electrocardiograms

All patients had resting electrocardiograms and those patients with convincing histories but normal resting studies were then subjected to stress electrocardiograms. The stress was induced on a standard two-step box and the physiologic end point of adequate stress was severe dyspnea, angina, or a 50 per cent increase in heart rate. All studies were performed and interpreted by the author. The criteria of myocardial ischemia were ST segment straightening with 1.0mm depression with or without T wave inversion. Consistent Q waves were considered evidence of infarction and either observation defined a positive study.

Of the 303 patients with significant coronary disease defined as greater than 70 per cent obstruction in one or more coronary arteries, only 126 patients (44 per cent) had a positive resting electrocardiogram. Furthermore, 12 patients with no observable coronary disease exhibited an abnormal resting electrocardiogram.

Stress electrocardiograms were performed in 374 patients. In 192 patients subsequently proved to have significant coronary disease, only 131 (68 per cent) had positive stress tests, and 61 patients (32 per cent) had negative studies. There were 16 patients with abnormal stress electrocardiograms who had no observable coronary disease by arteriography, of whom seven were premenopausal females. The 12 patients without observable coronary arterial obstruction whose resting electrocardiograms were positive represent 2.2 per cent of this series of patients with chest pain, and 8.7 per cent of all positive resting studies. The 16 abnormal stress studies occurring in patients without observable coronary disease represents 4.3 per cent of all stress studies done and 10.9 per cent of all abnormal stress studies. These 28 electrocardiographic studies which were positive in the absence of observable disease represent 3.1 per cent of all electrocardiograms done. The 16 patients with abnormal stress studies have been followed through their referring physicians and none has developed clinical coronary artery disease as of September 1970.

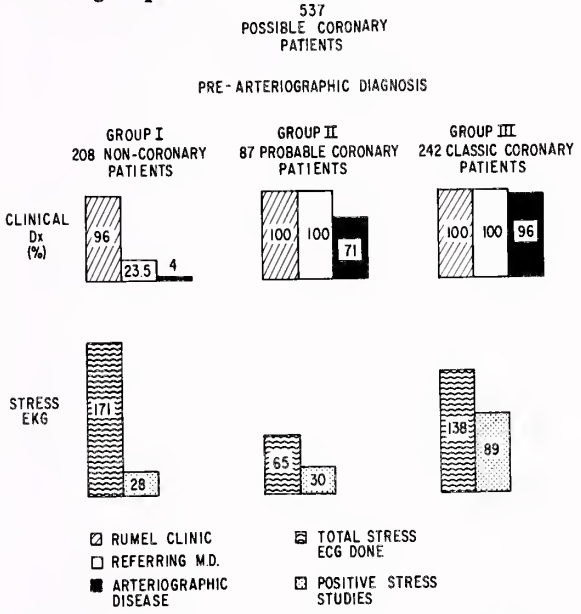
Clinical Evaluation

Preliminary clinical evaluation of these 537 patients consisted of an in-depth history, a physical examination and an electrocardiogram performed by a single observer. A prearteriographic diagnosis was recorded for each patient, and the entire group was then divided into three clinical groups. Group I consisted of 208 patients who were considered to be clearly non-coronary patients. Group II consisted of 87 patients who were considered to be probable coronary patients, but the diagnosis was not convincing. Group III consisted of 242 patients who exhibited a classical clinical coronary pattern. See Table 2.

Group I: These 208 patients had chest pain, which was atypical in character, and bore an inconsistent relationship to emotional and exertional stress. Their response to nitroglycerin was frequently inconsistent and they usually had a negative stress electrocardiogram. The group included a greater proportion of women (94-45 per cent) than either Group II or Group III. Fifty-one of

TABLE 2

Correlation of pre-arteriographic diagnosis at Rumel Clinic and by the referring physician with actual arteriographic evidence of disease in three clinical groups.



these women (54 per cent) were premenopausal and under 45 years of age. A searching clinical evaluation correctly placed 199 or 96 per cent of these patients in a non-coronary classification as subsequently documented arteriographically. Conversely, only 49 or 23.5 per cent of these patients were correctly classified by their referring physician.

Group II: This group consisted of 87 patients whose chest pain was stress related and who usually responded to nitroglycerin. The character of their pain was, however, not classical. The electrocardiographic response to stress was inconsistent and none of these patients had ever had a confirmed myocardial infarct. They were considered by the author to be indefinite but probable coronary patients and were predominantly in the sixth decade. Of the 13 women included, nine were post-menopausal. Both the author and the referring physicians properly classified only 71 per cent of these individuals as having significant coronary disease. Twenty-nine per cent had arteriographic evidence of normal vessels or insignificant disease.

Group III: These 242 patients had classical stress related chest pain and many had had confirmed myocardial infarction. The group included 224 men and 18 women, of whom 17 were post-menopausal. They were predominantly between 40 and 60 years of age and only 18 patients were under 40 years. Stress electrocardiograms were positive in 65 per cent of tests and only one individual in this group had a false positive stress electrocardiogram. Greater than 70 per cent occlusion of one or more coronary arteries was observed in 232 of these patients. Ninety-six per cent of them were properly classified both by this observer and by the referring physician.

Arteriographic Results

There were 537 patients with possible coronary artery disease and 83 rheumatic heart disease patients who were successfully studied. The 208 patients of Group I exhibited normal arteries or less than 30 per cent arterial obstruction in 195 instances, and only nine patients had greater than 70 per cent obstruction in a coronary artery. Of the 87 patients in Group II, 21 patients had less than 30 per cent arterial obstruction, and 62 patients had greater than 70 per cent obstruction in one or more coronary arteries. Among the 242 patients with classical coronary symptoms, 232 patients had 70 per cent or worse arterial obstruction, and only seven patients had normal appearing vessels. Review of the entire group of patients shows that 41.5 per cent had normal vessels, 56 per cent had significant coronary artery disease, and only 11 patients or two per cent had moderate lesions.

In review of all 620 arteriograms, which include the rheumatic heart disease patients, the right coronary artery was dominant in 65 per cent. The left coronary was dominant in 11 per cent, and in 24 per cent the right and circumflex vessels exhibited equal distribution to the posterior left ventricle though the posterior descending arose from the right coronary artery in these individuals.

The distribution of significant obstructive lesions among the three major coronary arteries in patients with significant disease is shown in Table 3.

The left anterior descending (LAD) and right coronary arteries (RCA) in combination were involved in 25 per cent of the patients. All three major vessels were involved in 24 per cent, and the left anterior descending alone was involved in 22 per cent. The

right coronary artery, the left anterior descending and circumflex (CCA), the circumflex and right coronary, and finally the circumflex alone were represented in order of decreasing incidence. Left ventricular aneurysm was present in 5.3 per cent of all patients studied. There were 83 patients with primary rheumatic heart disease who were studied because of suspected co-existing coronary disease. Fifty-five of these patients were men and 28 were women. They were predominantly over 50 years of age and 25 of the women were post-menopausal. Only nine patients of the 39 who had stress electrocardiograms had positive studies. Seventy-four or 89 per cent of these patients had normally patent coronary circulation, and six patients or 7.2 per cent had severe coronary obstruction. Three patients had intermediate non-occlusive coronary disease. Only one of the six patients with severe disease had isolated lesions in a single coronary artery, and the remaining five patients had multiple lesions involving two or more vessels.

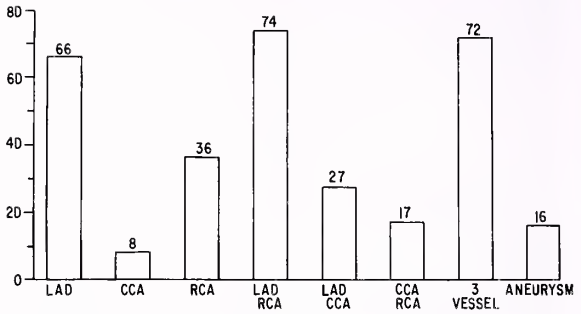
Complications of this arteriographic technic occurred in two patients. One instance of ventricular fibrillation occurred in a patient who was being studied because of persistent ventricular tachyarrhythmias. She was successfully converted to sinus rhythm before loss of consciousness. One patient in this group died as a result of the study, and he died one hour after completion of the study for reasons which remain unexplained despite extensive pathologic and toxicologic examination. There have been no acute myocardial infarctions occurring as a direct consequence of the arteriographic procedure. This represents a mortality experience of 0.16 per cent. There have been no significant brachial arterial complications of the procedure, and although the incidence of lost radial arterial pulses is unknown because of lack of follow-up, only six pulses are known to have been lost immediately following the study. No patient has required subsequent brachial or radial arterial reconstructive surgery.

Discussion

Despite the overwhelming superiority of selective coronary arteriography as the diagnostic method of choice in coronary artery disease, it is not yet a practical screening tool for the population at large. Clinical diagnosis by a searching history and by a properly executed stress electrocardiogram remain the most practical screening methods. The limitations of clinical assessment are apparent, however, in the extraordinary incidence of false positive diagnosis in Group I patients when casual interrogation is employed. If time and facility prevent a searching clinical evaluation of these patients, application of selective coronary arteriography would be preferable to an incorrect diagnosis which so seriously affects the patient's life. The equally alarming limitation of clinical evaluation is demonstrated by the Group II patients, among whom a 29 per cent incidence of incorrect diagnosis evolves from a very searching clinical assessment. In the experience of this observer a searching history reinforced by a high index of suspicion is a better diagnostic tool than the electrocardiogram.

The resting electrocardiogram is of little value since only 44 per cent of patients with severe disease had an abnormal study. Stress electrocardiograms in which angina, severe dyspnea, and/or 50 per cent increase in heart rate were the least requirements, were positive in only 68 per cent of patients with severe disease. Conversely, 4.3 per cent of all stress studies were positive in patients without arteriographic evidence of disease. All of these patients with false positive stress electrocardiograms have been followed through September 1970 and none has had confirmed evidence of coronary disease in a five year follow-up period. Among these patients with

TABLE 3
Distribution of coronary artery disease.



LAD=Left anterior descending
RCA=Right Coronary Artery
CCA=Circumflex Coronary Artery

abnormal electrocardiograms and normal arteriograms are seven premenopausal females ranging in age from 32 to 47 years.

Even though the majority of Group 1 patients were clinically noncoronary, for whom arteriography is superfluous, there are a few patients whose psychological need for an illness justifies this examination. Arteriography used as a diagnostic tool becomes most important for Group II patients for whom clinical criteria are the least dependable. Selective coronary arteriography was considered important for the rheumatic heart disease patients who were a decade older than the coronary patients. However, only seven per cent of these 83 individuals exhibited significant coronary disease.

Selective coronary arteriography is a simple, objective, diagnostic tool which is demonstrated by this experience to have an insignificant risk of morbidity and mortality. By the time of this writing 750 selective coronary arteriographic studies have been done and there have been no additional incidences of mortality or morbidity. In no case known to the author has a patient with arteriographically normal coronary circulation been subsequently proved to have had a myocardial infarct. The method is an invaluable diagnostic tool for clarification of uncertain clinical patterns of disease and it is an absolute requisite for evaluation of patients being considered for surgical treatment of their coronary disease.

Summary

1. Coronary artery disease is increasing in frequency and continues to exhibit a very high mortality despite the excellence of modern coronary care units.

2. The clinical diagnosis of coronary disease is most practically made by a critical clinical evaluation. A searching history appears to be the best clinical screening tool, since the electrocardiogram is negative in a very high per cent of patients who have coronary artery disease.

3. Selective coronary arteriography is a safe objective diagnostic method for confirmation of the status of the coronary circulation, for recognition of coexisting coronary disease in patients with rheumatic heart disease, and for the selection of patients for surgical treatment of coronary disease. The mortality associated with this method is 0.16 per cent. •

REFERENCES

[1] Sones, F. M., and Shirey, E. K.: Cine coronary arteriography. Mod. Concepts Cardiovas. Dis. 31:725, 1962.

Echocardiography*

Non-invasive approach in evaluation of cardiac disease

J. Douglas Ridges, MD, Salt Lake City, Utah

DIAGNOSTIC ULTRASOUND has been used in this country for many years. Its first application was in neurology where localization of midline structure gave useful information concerning expanding intracranial lesions. Cardiovascular applications have been developed more slowly. The original uses in cardiology were developed almost 20 years ago by Scandinavian and European investigators. The advent of electronic technics which provide display of echos on a continuous rather than a stationary time base has immeasurably aided the application of diagnostic ultrasound to problems in cardiology. Within the past five years, echocardiography has expanded into an acceptable non-invasive technic for evaluating cardiac patients, evidenced by the fact that most large centers in this country have added it as a routine procedure in cardiac evaluation.

Echocardiography has several advantages. First, the equipment is available in portable units; this allows the evaluation of almost any patient, even those too sick to be transported to a central recording location. Second, the technic is non-invasive and rarely if ever, causes discomfort to the patient. Third, unlike many non-invasive technics, it can be calibrated. Since the velocity of sound in most tissues falls within a very narrow range, the time elapsed between echo-producing events can be directly related to distance. Fourth, the use of diagnostic ultrasound is safe. The levels of energy presently used in the diagnostic range are approximately 1/1000 of the energy level which has been demonstrated to have detrimental tissue effects.

*From the Division of Cardiology, Department of Medicine, University of Utah and Latter-day Saints Hospital, Salt Lake City, Utah. The author is Chief, Cardiology Division, Latter-day Saints Hospital, Salt Lake City, Utah.

It is the purpose of this review to briefly outline the indications for echocardiography. Because of space limitations, detailed technical and research applications in this field will not be presented. Rather than provide a long list of references as documentation, two pertinent reviews of the subject are listed. The first is a symposium on ultrasound which appeared in 1967.[1] The second is an extensive review of echocardiography which is to be published in late 1971 or early 1972.[2]

Principles and Technics

The sine qua non of diagnostic ultrasound is the piezoelectric crystal. This material has the characteristics of generating high frequency sound when energized by an electrical pulse. Conversely, the material has the capability of generating an electrical pulse when excited by sound of its characteristic frequency. The frequencies used are in the range of two million cycles per second. Therapeutic ultrasound uses frequencies of 200,000 to one million cycles per second. The equipment for diagnostic ultrasound is designed to generate pulses of high frequency sound 1,000 times each second. The crystal generates sound for 1/1000 of a second and then receives returning sound waves for 999/1000 of a second in order to register an electrical pulse. This design, therefore, provides the capability of recording echos from surfaces of varying densities. Since the time elapsed from the generation of the impulse to the return of a given echo is proportional to the distance traveled, one then knows the distance of the echoing structure from the reference point. An echo will be produced only when the sound pulse strikes surfaces of different densities (impedance). A portion of

the sound continues through the interface while the remaining sound is reflected back to the awaiting crystal.

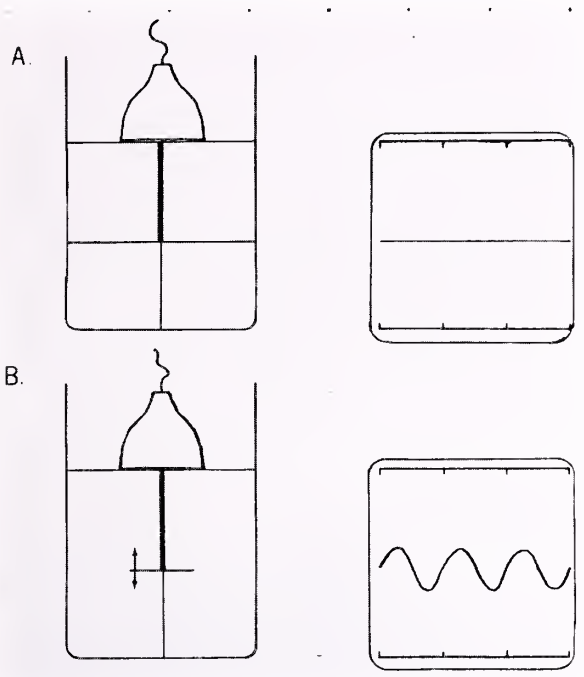


Fig. 1. Diagrammatic illustration of the technic in display of echocardiographic signals.

The method of the ultrasound recording is shown diagrammatically in Fig. 1. The example uses a breaker of water with a suspended membrane providing the echo-producing interface. The transducer is placed on the surface with sound waves passing toward the bottom of the beaker. The sound is reflected from the surfaces of different acoustical impedance (the water and membrane) and returned to the transducer. The right side of Fig. 1 shows the oscilloscopic display of echos from the membrane and bottom of the beaker. Oscillation of the membrane (bottom of Fig. 1) produces an echo with changing time distance relationships to the surface with the resultant sinusoidal wave form being displayed on the oscilloscope. This diagram serves as an analogy to the *in vivo* use of ultrasound. The surface of the water is analogous to the anterior chest wall in the third, fourth, or fifth intercostal space adjacent to the left sternal border (the usual location of transducer placement). The membrane is analogous to a heart valve as it is suspended in the circulating blood. The bottom of the beaker is analogous to the posterior wall of the heart or posterior chest wall. In routine echocardiography, the transducer (crystal) is placed on the anterior chest wall and the sound beam is directed posteriorly with angulation of the beam depending on the location of the echo-producing structure under examination.

In all of the examples to be shown in this paper, a fixed convention is followed. The top of each illustration corresponds to the anterior portion of the chest while the bottom of the illustration represents the posterior portion of the chest. Thus, structures will appear from top to bottom in an anterior to posterior direction respectively. The pictures are shown in a time-motion mode with the beginning of the trace located on the left-hand side of the illustration and the end of the tracing located on the right-hand side of the illustration. The elapsed time from left to right is three seconds in duration. The description of all illustrations is given in the text. The abbreviations used in the illustrations are given in Table 1.

TABLE 1

ABREVIATIONS USED IN THE ILLUSTRATIONS

AW—Anterior heart wall (right ventricle)
CW—Chest wall
Diast—Diastole
IVS—Interventricular septum
LA—Left atrium
LV—Left ventricle
MV—Mitral valve
MVE—Mitral valve echo
PW—Posterior heart wall (left ventricle)
RV—Right ventricle
Sys—Systole

The Normal Mitral Valve

The motion of the mitral valve seen echocardiographically provides diagnostic information in several disease states. Therefore, motion of the normal mitral valve becomes important in differentiation of these diseases. The anterior mitral leaflet is most readily recorded and a tracing of a normal anterior mitral leaflet is shown in Fig. 2. As the valve opens in early diastole, rapid an-

terior motion is inscribed (d-e). Subsequent to the initial opening the leaflet moves posteriorly (e-f) as rapid ventricular filling ends. This motion is changed in mitral stenosis, as described later. In late diastole, coincident with atrial contraction, the leaflet moves anteriorly (a). This motion is lost in rhythms (e.g., atrial fibrillation) where effective atrial contraction is absent. As mechanical systole begins, the leaflet shows a rapid posterior motion (a-c) as the valve closes. During systole the valve remains in a posterior position with slow anterior motion (c-d). Motion of the normal posterior leaflet when recorded is a mirror image of anterior leaflet motion.

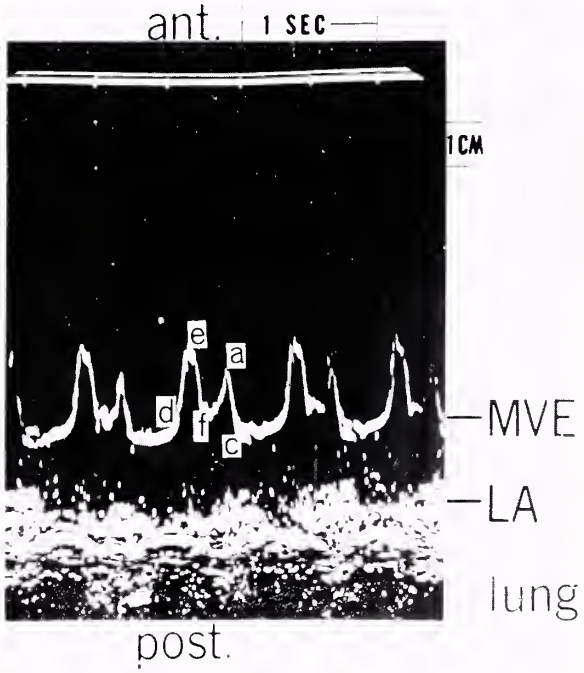


Fig. 2. Motion of normal anterior mitral leaflet.

Mitral Stenosis

Echocardiography has become an important tool in the diagnosis of mitral stenosis and the evaluation of its severity. A typical echograph of a stenotic mitral valve is shown in Fig. 3. The elevated left atrial pressure and increased gradient across the valve holds the valve in a widely open position during diastole. Thus, the rapid posterior motion (following the e point as in Fig. 2) is prevented and a slow diastolic slope is inscribed. The severity of mitral stenosis can be estimated by the rate of posterior motion, severe mitral stenosis being below 15 mm/sec and mild mitral stenosis between 35-60 mm/sec. Notice the absence of anterior motion with atrial contraction in late diastole. The posterior leaflet is recorded in this figure as a continuation of the systolic motion below (posterior to) the anterior leaflet. This motion is characteristic of the posterior leaflet in mitral stenosis and is essentially nonmoving as compared to a normal posterior leaflet which should move posteriorly. Serial mitral echography, less traumatic than repeated cardiac catheterization, is useful in post-commissurotomy patients where one is concerned about re-stenosis of the valve. In addition, the demonstration of an immobile valve with limited excursion can aid the surgeon in the surgical approach since the immobile valve rarely lends itself to successful commissurotomy.

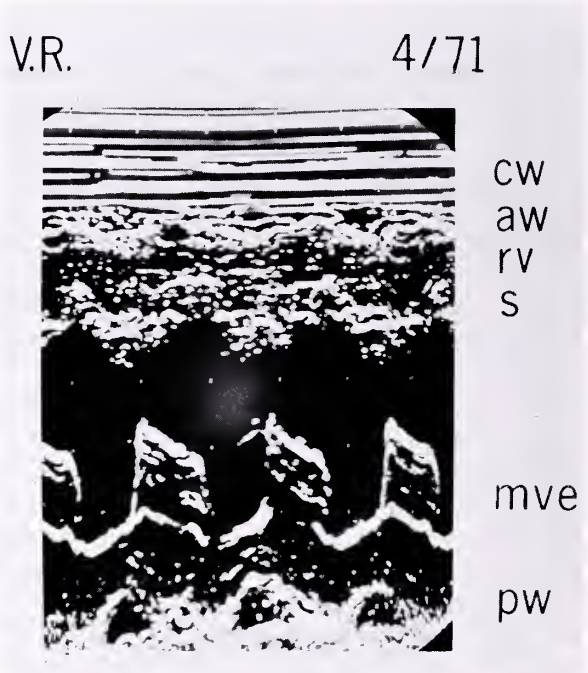


Fig. 3. The mitral valve motion in mitral stenosis.

Aortic Regurgitation

The presence of aortic regurgitation often makes the clinical diagnosis of associated mitral stenosis difficult. Definite knowledge of the presence or absence of coexisting mitral stenosis is clearly an advantage in the patient undergoing hemodynamic evaluation of aortic regurgitation. Valuable time is saved during cardiac catheterization since detailed demonstration of a mitral gradient is unnecessary. In addition, an artifactual mitral

gradient may be present in the absence of actual stenosis. The echocardiographic appearance of a normal mitral valve has characteristic features in the presence of aortic regurgitation (Fig. 4). This tracing was obtained from a patient with severe aortic regurgitation and an Austin-Flint murmur. The presence of a rapid diastolic slope excludes mitral stenosis as a cause of the apical diastolic murmur. An additional feature, diagnostic of associated aortic regurgitation and not seen with a stenotic mitral valve, is the high frequency serration of the anterior leaflet motion during diastole. This "fluttering" is probably due to buffeting of the valve between the regurgitant aortic blood and inflowing blood through the mitral valve.

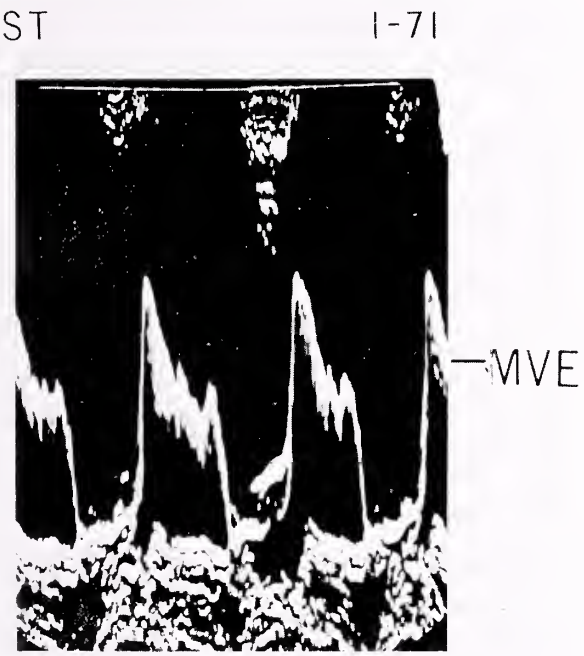


Fig. 4. Motion of the normal mitral valve in a patient with aortic regurgitation.

Mitral Valve Prolapse

In the past several years, there has been a "rediscovery" of an interesting disorder of the mitral valve apparatus. Although the findings of this disorder have a broad range of auscultatory manifestations, the manifestations most easily recognized clinically are a late systolic murmur with or without a systolic click. The systolic click is usually mid-systolic but is also seen to occur in early and late systole. The click commonly initiates the murmur but may be present without a cardiac murmur. In addition, a late systolic murmur may be present without a click. The etiology of this syndrome is varied. The two most commonly recognized abnormalities are papillary muscle dysfunction and redundant chordae tendinae.[3] The availability of echocardiography has provided striking evidence that the clinical findings in this syndrome originate from the mitral valve. We recently evaluated a patient with angiographically documented coronary artery disease, angina, and a persistent late systolic murmur. An echocardiogram of the mitral valve showed findings typical of late systolic prolapse of the mitral valve (Fig. 5). Notice that the diastolic motion of the valve appears to be normal (compare with Fig. 2). In systole, however, a distinct abnormality in motion of the valve occurs. The early systolic motion of the valve is horizontal and as systole progresses there is a sudden posterior motion of the valve which coincides temporally with the onset of the late systolic murmur. This motion is not diagnostic from the standpoint of etiology since prolapse of the mitral apparatus, identical to that shown in Fig. 5, is seen in young patients having this same syndrome of mid-systolic click and late systolic murmur. We have also documented echocardiographic prolapse of the mitral valve in the clinical setting of the mid-systolic click without an associated murmur. This syndrome is usually benign in the absence of coronary artery disease, does not require cardiac catheterization for its diagnosis, and these patients do not need therapy unless hemodynamic compromise develops in association with the mitral regurgitation or arrhythmias are also present. Echocardiography, therefore, provides a definitive diagnosis without the discomfort, risk, or expense of cardiac catheterization and left ventricular angiography.

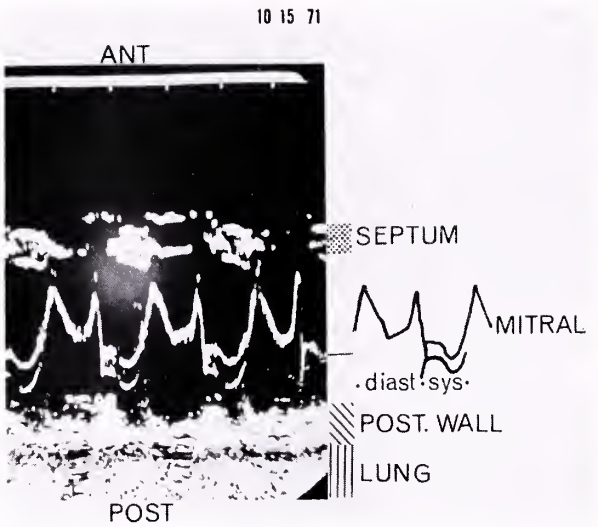


Fig. 5. Echocardiographic display of mitral valve prolapse.

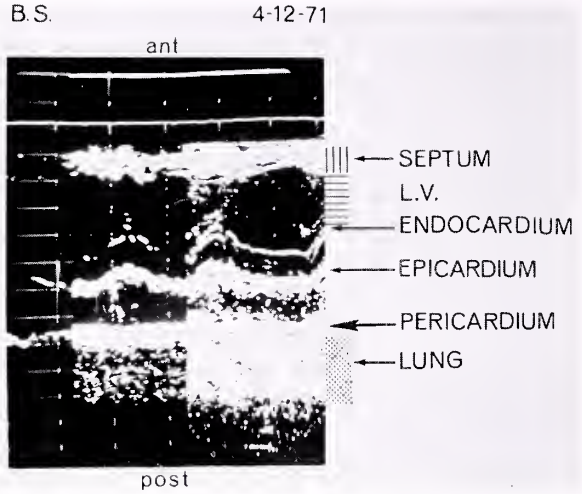


Fig. 6. Echocardiographic appearance of pericardial effusion.

Pericardial Effusion

One of the early applications of echocardiography was in the diagnosis of pericardial effusion. The strongest echo from the region of the posterior left ventricle comes from the pericardial-lung interface. This echo normally moves anteriorly as the heart contracts, since the pericardium is adjacent to the epicardium. When pericardial fluid is present, the strong pericardial echo loses motion and the ventricular wall is seen to move within the fluid-filled sac. An echocardiogram from a patient with pericardial effusion is shown in Fig. 6. The strong echo is seen on the left of the tracing and locates the pericardium. As the sensitivity is progressively increased, the contracting left ventricle appears. The fluid-filled pericardial space is seen between the epicardium and pericardium. In the absence of fluid, the strong pericardial echo shows motion similar to the epicardium and an echo-free space between the epicardium and pericardium is not seen. This normal situation can be visualized by deletion of the portion of Fig. 6 between the epicardium and pericardium. The technic is extremely sensitive and this writer has documented effusions as small as 150 cc of fluid in a patient with pericarditis. Evaluation for pericardial fluid can be performed at the bedside in a short period of time and this method, where available, is becoming the procedure of choice in diagnosis of pericardial effusion.

Hypertrophic Subaortic Stenosis

A more uncommon form of heart disease with atypical clinical findings and a low index of suspicion is idiopathic hypertrophic subaortic stenosis. In this disease, the hypertrophied left ventricle causes a subvalvular obstruction to outflow of the left ventricle. A large portion of this obstruction occurs between the anterior leaflet of the mitral valve and the interventricular septum. Not infrequently, because of the distorted position of the mitral valve, there is associated mitral regurgitation. The combination of mitral regurgitation and left ventricular outflow obstruction presents unusual auscultatory findings atypical of either aortic stenosis or mitral regurgitation. The echocardiographic appearance of the abnormal valve motion is diagnostic of idiopathic hypertrophic subaortic stenosis when an outflow obstruction is present.[4] In some patients the outflow obstruction is present intermittently, termed labile disease. In labile disease, the valve motion is normal when an obstruction is absent and becomes abnormal when there is evidence of obstruction. Thus, the valve motion abnormalities may appear only after a premature ventricular depolarization or with such provocative maneuvers as infusion of Isuprel, Valsalva's maneuver and administration of amyl nitrite. An echocardiogram of mitral valve motion in idiopathic hypertrophic subaortic stenosis is shown in Fig. 7.

The second cardiac cycle in this figure is retouched for purposes of clarity. The structure seen in this cycle (beginning with the vertical mark on the left at the top of the figure) are the interventricular septum, anterior mitral leaflet, posterior mitral leaflet, posterior left ventricular wall, and lung. The motion of the anterior leaflet in diastole is distorted in a manner similar to that seen in mitral stenosis; however, the posterior mitral leaflet (presenting as an asymmetrical "w" shaped appearance in diastole) is normal as discussed previously. The presence of normal diastolic motion of the posterior mitral leaflet excludes the presence of mitral stenosis, which might be suspected in the presence of the distorted anterior leaflet motion. During systole the anterior and posterior mitral leaflets move anteriorly and are seen to touch the interventricular septum. In late systole, the anterior and posterior leaflet move in a posterior direction. If one compares this systolic motion with that seen in Fig. 2, a definite abnormality can be recognized. The anterior motion of the mitral leaflet with subsequent posterior motion in late systole, associated with coaptation of the interventricular septum and anterior mitral leaflet, is diagnostic of hypertrophic subaortic stenosis. Since this pattern is lost in the absence of outflow obstruction, echocardiography becomes useful in evaluating the response to beta adrenergic blocking agents. When beta adrenergic blocking drugs are successfully administered to these patients, the outflow obstruction is lost and the echocardiographic picture returns to normal.

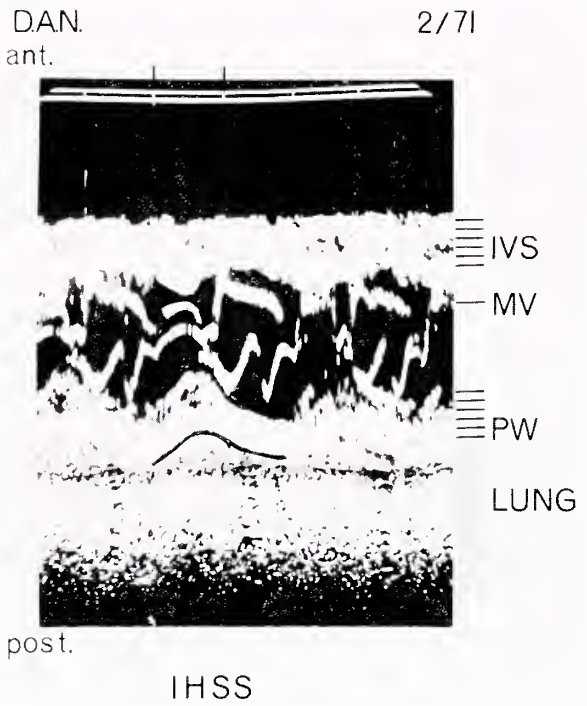


Fig. 7. Mitral valve motion diagnostic of idiopathic hypertrophic subaortic stenosis.

Other Diseases

Echocardiography has recently been demonstrated to be a useful tool in differentiation of functional murmurs and murmurs due to atrial septal defect.[5] In patients with atrial septal defect, two features are characteristic: (1) there is abnormal motion of the interventricular septum, and (2) the dimension of the right ventricular chamber as related to body surface area is increased, demonstrating right ventricular volume overload. Data currently available shows a good separation of the right ventricular size between normals and patients with atrial septal defect. A combination of the increased dimension index of the right ventricle and abnormal motion of the left side of the interventricular septum provides an excellent means of screening patients with possible atrial septal defects prior to cardiac catheterization.

Prior to the routine use of echocardiography, the pre-operative diagnosis of cardiac tumors, specifically left atrial myxomas, rarely has been made. Echocardiographically, myxomas of the left atrium are seen to protrude through the mitral valve orifice adjacent to the anterior mitral leaflet. The tumor is also seen as a dense echo within the left atrium, moving in a cyclic fashion. In centers where diagnostic ultrasound is available, left atrial tumors are now identified prior to surgery. In these centers, any patient presenting with a clinical picture of atypical mitral stenosis is evaluated echocardiographically.

Summary

In the past several years, echocardiography has developed into an extremely useful technic in the evaluation of patients with cardiac disease. The technic provides clinical medicine with a procedure for objective patient evaluation. This paper has presented a summary of the common indications for echocardiography. Applications currently in developmental stages have not been presented and details of methods of performing echocardiography have been deleted because of space limitations. It must be stated that the technic is not easily performed and it would be a disservice to leave one with an impression to the contrary. It is not unreasonable to state, however, that echocardiography has become a proven procedure in clinical cardiology and provides a dimension in patient evaluation which has not been available previously. •

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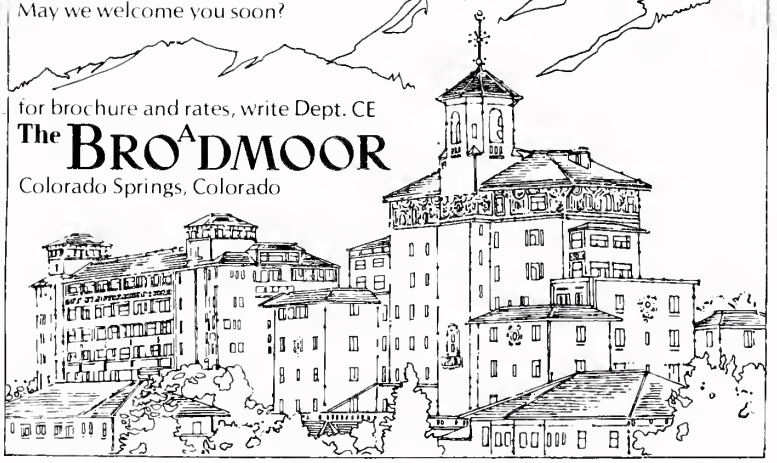

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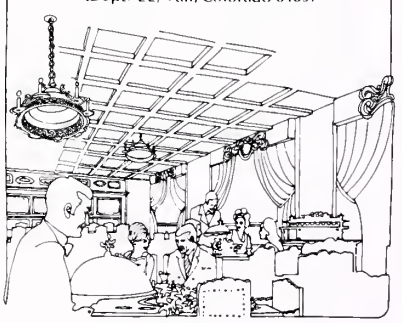

Marijuana and human behavior*

A Brief Review

Lincoln D. Clark, MD, Salt Lake City, Utah

CONFUSION AND DEBATE about marijuana center primarily on two issues. The first issue is the acute mental and behavioral effects of the drug. At one extreme are individuals, some with the zeal of lobbyists, who argue that marijuana is a rather benign euphoriant, even called an "innocuous weed", who attack or deny evidence to the contrary, and who work to overcome the resistance of the "establishment" to its free availability as an intoxicant. In so doing they succeed in creating a sense of moral uncertainty about legal restrictions on marijuana and persistent confusion in otherwise well-informed people as to the "truth" about marijuana and its behavioral effects. Most of the information reaching the public is slanted in one way or another and there is often subtle bias in articles about marijuana published in scientific journals. Commonly "negative" information about the drug is skeptically received and analyzed with scientific rigor, while favorable reports are uncritically accepted. If an investigator includes in his reports an account of tests which proved insensitive to lower doses of marijuana, these may be cited out of context as evidence that the drug has insignificant mental effects.

The second major issue is the consequence of long-term marijuana use. This question will probably be resolved not in the laboratory but in the many thousands of natural experiments being conducted by psychedelic drug users. Meanwhile the polemic continues. To some, "flashbacks" or recurrent episodes of altered self-awareness and distorted perception are hysterical or learned experiences; to others they suggest temporal lobe seizures. Behavioral changes in heavy users such as apathy, drifting, loss of motivation, and social withdrawal are interpreted by some as rejection of establishment values but by others as deterioration secondary to organic brain deficit. So much for the emotionality, bias, and value conflicts which contribute to the marijuana controversy.

There are several pharmacologic principles relevant to drug abuse which are so elementary that one would omit mentioning them if they were not so consistently neglected in both lay and professional discussions of this problem. One is the matter of dosage. The effects of a drug are obviously dependent upon the amount taken. Comparison of one drug with another, as in the common polemic of alcohol versus marijuana, is meaningless unless the dose-effect relationships of each are considered. The stimulation, relief of fatigue, and mild euphoria of the South American native chewing coca leaves is hardly comparable to the grandiosity, excitability, and omnipotent delusions of the cocaine sniffer. Similarly, marijuana "American style", the occasional use of low potency cannabis preparations, is psychedelically pallid compared to hashish oriental style. While marijuana is often regarded as a mild psychedelic and LSD-25 as a powerful one, the effects of a sub-hallucinogenic dose of the latter (e.g., 0.5 microgram/Kg body weight) are about identical to those of the usual marijuana "high". The major difference is the amphetamine-like stimulation of LSD contrasted with the relaxed euphoria of marijuana.

Much confusion about marijuana can be resolved by recognizing the dosage problem. The potency of street marijuana varies greatly, and some samples in fact contain no

*From the Department of Psychiatry, College of Medicine, University of Utah. The author is Professor of Psychiatry, Adjunct Professor of Pharmacology, College of Medicine, University of Utah; Research Scientist Awardee, NIMH.

tetrahydrocannabinol (THC) at all and could indeed qualify as an "innocuous weed". A major contribution of recent work has been to clarify dose-effect relationships using modern chemical methods to measure the THC content of cannabis preparations.

An additional difficulty is that the "dose-effect" curve of marijuana is not a smooth one. Users refer to this phenomenon as the "ins and outs"—a cyclic waxing and waning of the severity of the intoxication which occurs with marijuana as well as LSD.[1] S. Loewe, one of the contributors of the Mayor's Report,[2] found that the two most commonly used bioassays of marijuana activity, the sway test in dogs and the corneal anesthesia test in rabbits, showed marked intraindividual variability in response to a given test dose. In lower dosage ranges this may reach $\pm$70 to 80 per cent of the mean. Reliable bioassays could be obtained, however, by repeated testing in the same animal. Averaging of repeated measures with a given procedure during the period of drug intoxication and use of tasks which require longer time intervals to carry out are some means of limiting this variability.

A cardinal principle of psychopharmacology is that prediction of drug effects on mentation and behavior must take into account a number of non-pharmacologic variables. These include the prior experiences of the individual, his expectations about the intoxication, his mood and needs, and the physical and social dimensions of the environment insofar as they may inhibit or enhance drug effects. There is an element of learning through repetition to enjoy even as potent an euphoriant as heroin. LSD given to groups of individuals may induce giggling, silliness, and loquaciousness, while in isolated subjects it produces quiet withdrawal and reluctance to talk. "Straight" types or non-users are traditional "bummers" at a pot party. The visual distortions produced by LSD or other hallucinogens are enhanced by poor illumination and ambiguous stimuli in the environment.

Accordingly, one is not surprised to find considerable variability from one subject to another in response to the same dose of such drugs. However, with care to control non-pharmacologic variables and use of reliable behavioral measures, a nuclear syndrome of mental effects and reasonably predictable dose-effect relationships can be identified.

I would agree with Hollister's comment[3] that much of the recent work with marijuana represents a rediscovery of well known phenomena or elegant proofs of the obvious. This is particularly true of its psychologic effects. The occurrence of euphoria, hilarity, dreamy detachment, impaired concentration, rambling thoughts, sensory novelty generated by loss of normal habituation to irrelevant stimuli and altered perception of space and time under the influence of less potent cannabis preparations have been repeatedly described by observers since the mid-nineteenth century. Confusion, visual illusions and hallucinations, fragmentation of thinking, gross distortions of body image, or in brief the psychotoxic state common to hallucinogenic drugs are known to be induced by more potent preparations such as charas and hashish.

The first organized effort at a comprehensive study of marijuana was published as the so-called Mayor's Report in 1944.[2] The yield for the money provided to support these studies, $22,500, is spectacular by present standards. The most valuable portion of the Mayor's Report is the finding from an extensive battery of psychophysic and intellectual tests given to subjects, both male and female, user and non-user, under the influence of various amounts of marijuana, smoked and ingested. The drug was found to produce significant dose-related impairment of static equilibrium, hand steadiness, and complex (choice) reaction time. Using the Army Alpha Tests of Intelligence, Pyle's Digit Symbol Test, Kohs Block Design, and several form board tests, the investigators again found dose-related decrements in overall mental functioning and, more strikingly, in sub-tests involving memory, number concepts, and problem-solving ability. The higher the dose and the more complex the task, the greater the impairment. Marijuana in the doses used produced no significant changes in hand strength, auditory acuity, perception of length of lines on paper, or tapping speed.

Recent experimental studies[1,3,4,5,6] have confirmed and extended those in the Mayor's

Report. The subjective and performance effects of THC, whether smoked or ingested, have proved to be the same as those produced by marijuana extracts or natural cannabis preparations. There is general agreement in the findings. Tasks which are most sensitive to lower doses of marijuana are those which involve recent (rather than old) memory, sequential goal-directed thinking, selective attention, complex discriminations, solution of novel problems which require mathematical or abstract reasoning, and comprehension of written information. Subject's overestimation of elapsed time is far greater when preoccupied with a task than when not so engaged.[5] The few studies[7,8] which show only minimal effects from marijuana, when examined critically, have one or more of the following features: cannabis preparations of unknown or low potency, uncertain dose delivery because of variations in smoking technics, use of simple performance tests insensitive to drug impairment, or employment of marijuana habitues as experimental subjects with bias against placebos or other drugs being compared with marijuana.

The behavioral toxicity of marijuana is determined by dosage and the nature of the tasks or mental operations undertaken during intoxication. A substance which creates euphoria, distractability, sporadic impairment of vigilance and reaction time, which expands time sense, and which causes near objects to appear further away must be presumed to impair ability to operate a motor vehicle or aircraft. As in the case of alcohol, legal sanctions against the use of intoxicants in situations which would endanger others are obviously in the public interest.

Assessment of the long term effects of cannabis preparations is far more difficult. One problem is that heavy marijuana users in the United States have usually had varying degrees of exposure to other psychedelic drugs, particularly LSD-25, and often amphetamines. Conversely, marijuana use is frequent in multiple psychedelic drug users. There is considerable literature on the effects of chronic use of potent cannabis preparations in Africa and India.[9,10,11] These writers express the belief that chronic psychosis and even dementia are definitely cannabis related. However, their opinions have been generally ignored or discounted as lacking scientific merit. Only the future will tell whether or not this skeptical attitude is justified.

Most psychiatrists as well as others close to urban enclaves of drug abuse see individuals who are daily users of marijuana or hashish when it is available. As dependence becomes more severe, the individual's time is increasingly taken up with drug-seeking behavior and periods of intoxication. This is accompanied by a proportionate decline in more productive social and economic activity. Other influences seem to accelerate this deterioration, particularly adopting "values" of the drug sub-culture with its hedonistic orientation and disparagement of traditional values and long-term goals. The drugs themselves become principle sources of pleasure, novelty and escape from reality pressures. The drug abuser tends to "drop out" of family, school, and the main stream of life. Especially is this a problem in the very young, for they may miss opportunities to learn important social skills and to develop adult behavioral patterns. In a manner of speaking one might consider this as "developmental toxicity". In a very real sense the drop-out who wishes to "re-enter", finding himself ill-equipped to cope with society and its challenges, may find that a return to drugs is his only hope for relief from the resulting frustration.

There are a number of other aspects of chronic drug abuse which are not yet well defined or clearly understood. These occur primarily in the group of heavy multiple psychedelic users with heavy exposure to marijuana, potent hallucinogens, and sometimes bouts with "speed" as well. However, the trend in case reports indicates that sufficient cannabis use can produce most of the clinical syndromes associated with LSD. One of these phenomena is the "flashback" or "free trip", commonest in repeated LSD users but also occurring in heavy marijuana or hashish smokers.[12] These consist of brief episodes during which a mild version of the acute intoxication is re-experienced. The cause is unknown. Possible explanations include a type of exteroceptive-interoceptive conditioning or drug-induced irritative cerebral lesions which discharge periodically to

produce experiences resembling those occurring in temporal lobe seizures. There is indeed evidence that limbic system structures, such as the hippocampus, are particularly sensitive to LSD.[13] Data on the excretion of THC suggest that cumulative toxicity may be a serious possibility with frequent use.[14]

There is a trend among chronic psychedelic users to social withdrawal, wandering, passivity and preoccupation with inner experience. Some work not at all while others are employed sporadically at menial work below their abilities or education. To some extent this life style may reflect "anti-establishment" values and loss of conventional motivations or be an evolution of a personality disorder which antedated drug involvement. However, some observers have the impression that the passivity, disengagement, avoidance of stress, sterotypy of the life style, and abandonment of long-range goals may reflect chronic impairment of their capacity to think, plan, and cope with their environment. Indeed some of these individuals complain of impaired memory, difficulty concentrating and thinking sequentially, and recurrent disturbances of perception and self-awareness. The term "spaced out" is sometimes used to describe these changes.

Understandably, the drug scene and affiliated sub-cultural groups of "hippies", "street people", etc., can become a refuge for pre-psychotic or psychotic individuals. While they may thereby temporarily escape stress and even find some acceptance and support, repeated drug intoxication tends to increase their disorganization and some eventually gravitate to mental hospitals. In such situations it is impossible to assess the relative importance of the underlying personality disturbance, emergence of the psychotic process with time and stress as compared to immediate or delayed consequences of drug abuse.

I think that it will not be long before we have good information about the long-term consequences of heavy multiple psychedelic drug exposure. Preliminary studies of these "spaced out" individuals (most of them with above average to superior intelligence) show that some have significant deficits in tests involving recent memory, "tracking" or sequential thinking, concept formation tasks, and solution of novel problems. Many have recurrent episodes of sensory disturbance, primarily visual, and feelings of depersonalization unrelated to acute drug use.[15] Repeat testing at follow-up visits will have to be done to determine how permanent these effects are.

Meanwhile investigators should be searching for pure culture heavy marijuana users and trying to gain their cooperation in studies involving serial assessment of their mental status and intellectual abilities and repeated electroencephalograms over extended periods. Some useful information may come from field studies in foreign countries where cannabis is freely available.

While it is an unhappy thought, the definitive answers, as was the case with the alcoholic encephalopathies, may come from the neuropathologist. The full impact of the massive drug exposure of youth during the '60's may not be adequately assessed for another decade. •

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The seven wrong answers*

Concerning some common arrhythmia mis-diagnoses

Alan E. Lindsay, MD, Salt Lake, City, Utah

SINCE THE INCEPTION OF Coronary Care Units (CCU) about seven years ago a great deal has been learned about the recognition and treatment of cardiac arrhythmias. Many clinicians are now on easy speaking terms with the common arrhythmias that complicate the course of acute myocardial infarction, and they have an increasingly sophisticated knowledge of some of the more complex arrhythmias that ten years ago were either unrecognized or at best poorly understood.

Despite this lively interest in arrhythmias, errors in diagnosis still occur in any busy CCU and may result in serious misapplications of therapy. These errors are often the result either of an illogical and non-systematic approach to arrhythmia analysis or of the failure to appreciate some small clue which totally changes the interpretative concept. Too often analysis of an insufficient sample (total reliance on only one ECG lead, inadequate length of ECG strip, failure to observe closely the beginning and end of an episode of tachyarrhythmia, etc.) leads to hasty and inaccurate conclusions. At other times physicians fail to make use of valuable information from bedside examination that might clarify the meaning of an inconclusive rhythm strip.

In this communication seven brief cases are presented in which a "wrong answer" led to consideration of inappropriate therapy. These are common arrhythmia problems that any physician caring for acute cardiac cases should be able to recognize and treat.

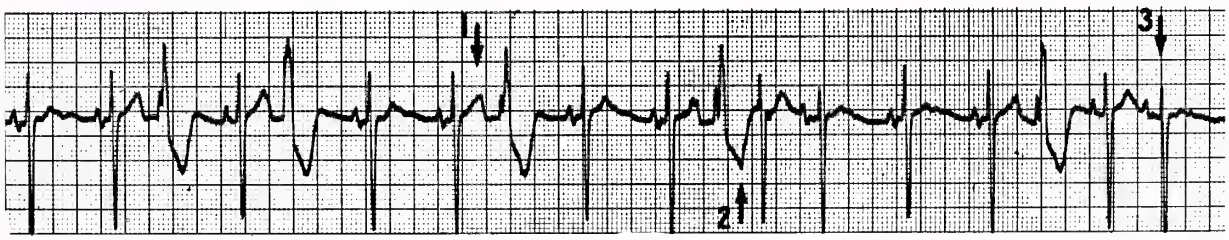

Fig. 1

1. THE FALSE PVD'S

The Wrong Answer: A man of 57 sustained an anterior myocardial infarction. He had been given no drugs at the time of the tracing depicted in Fig. 1. The attending physician felt that the rhythm strip showed frequent PVD's.† Several boluses of intravenous lidocaine and a maintenance drip of 2 mg./min. were given. This therapy failed to eradicate the ectopic depolarizations. The decision then was made to switch to intravenous procainamide, but before this could be done the patient suddenly developed atrial fibrillation with a rapid ventricular response.

*From the Inter-Mountain Clinic, Salt Lake City.

†The following abbreviations are used in this communication:
PVD—Premature Ventricular Depolarization (a term preferable to the older "PVC")
PAD—Premature Atrial Depolarization
IVCD—Intraventricular Conduction Defect
AVC—Aberrant Ventricular Conduction
RBBB—Right Bundle Branch Block
LBBB—Left Bundle Branch Block

The Right Answer: To be sure, there are premature depolarizations that exhibit abnormal QRS form in this strip of V_1. However, each abnormal premature QRS complex is preceded by a P-wave which is superimposed on the T-wave. Comparison of this T-wave with a T-wave that is not followed by a premature depolarization clearly shows the difference. Arrow 1 illustrates the premature P-wave. At Arrow 3, a slightly later PAD does not result in AVC and the QRS form is identical to that of the sinus beats. Arrow 2 shows a supraventricular complex closely following a PAD. The slightly off-time negative P-wave at the bottom of the T suggests retrograde atrial stimulation and the presence of a reciprocal beat.

The therapy in this case should quite clearly be directed against PAD's rather than PVD's. Appropriate therapy would have been digitalization because of the strong possibility of ensuing atrial fibrillation. RBBB configuration of a premature QRS strongly suggests AVC.[1]

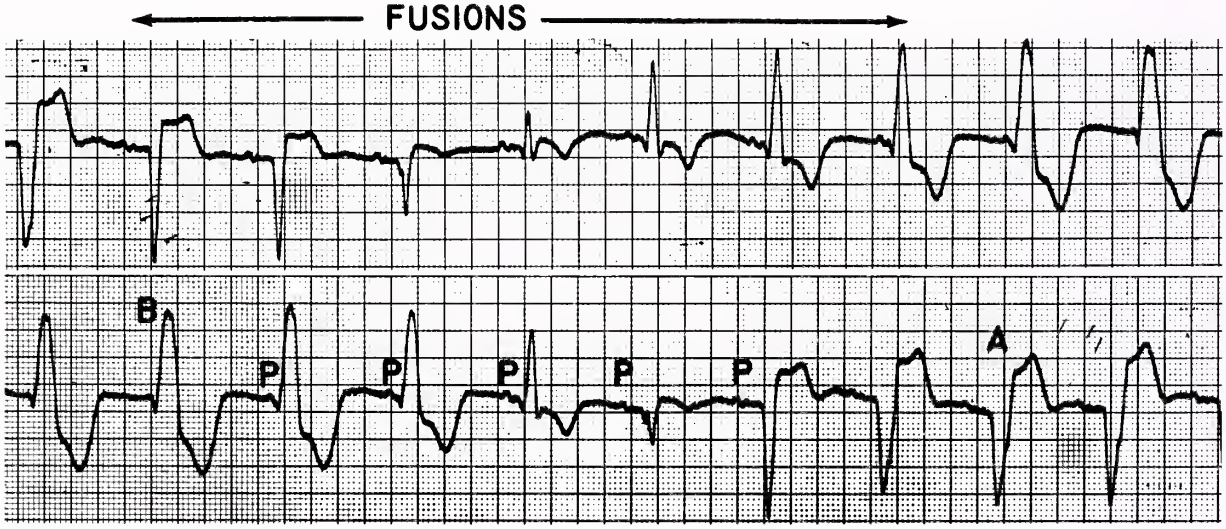

Fig. 2

2. THE FALSE BUNDLE BRANCH BLOCK

The Wrong Answer: A 68-year-old white male was suffering his third episode of myocardial infarction. He had congestive heart failure and was receiving maintenance digitalis. The rhythm illustrated in Fig. 2 was recorded shortly after admission. His 12-lead ECG showed LBBB. It was noted in this rhythm strip (continuous V_1) that the QRS form gradually changed from LBBB to RBBB with peculiar intermediate QRS complexes preceded by P-waves. It was felt that this represented intermittently alternating bundle branch block. Because of the appearance of intermittent IVCD serious consideration was given to the institution of transvenous pacing.

The Right Answer: Rather than intermittent bundle branch block this is a typical example of accelerated isorhythmic ventricular rhythm. It is noted that there are two basic QRS forms and that the sinoatrial rate does not vary appreciably. QRS "A" has typical LBBB configuration and is preceded by a P-wave at a fixed PR interval of 240 msec. The "B" type of QRS complex shows RBBB at a slightly faster rate than "A". This represents the emergence of a left ventricular focus (producing RBBB configuration) at a rate slightly faster than the SA rate. Thus we have an instance of AV dissociation with two pacemakers (sinus and ectopic ventricular) at nearly identical rates. The intermediate QRS complexes are all fusion beats. The two foci simultaneously activate the ventricles to varying degrees. Note the gradually diminishing PR interval during the series of seven fusion beats in the top strip. This is a certain clue that the SA node is no longer in control and that AV dissociation has occurred.

This rhythm has been found to be very common in patients with acute myocardial infarction, and although it cannot be said with certainty that it is not an AV junctional focus with AVC, recent evidence utilizing His bundle recording technics seems to indicate that it is of ventricular origin.[2] This rhythm disturbance is usually transient and rarely lasts for more than 10 to 15 heart beats. It is generally harmless and does not lead to serious ventricular tachyarrhythmia; when associated with a slow atrial rate, it can usually be abolished by the use of intravenous atropine.[3]

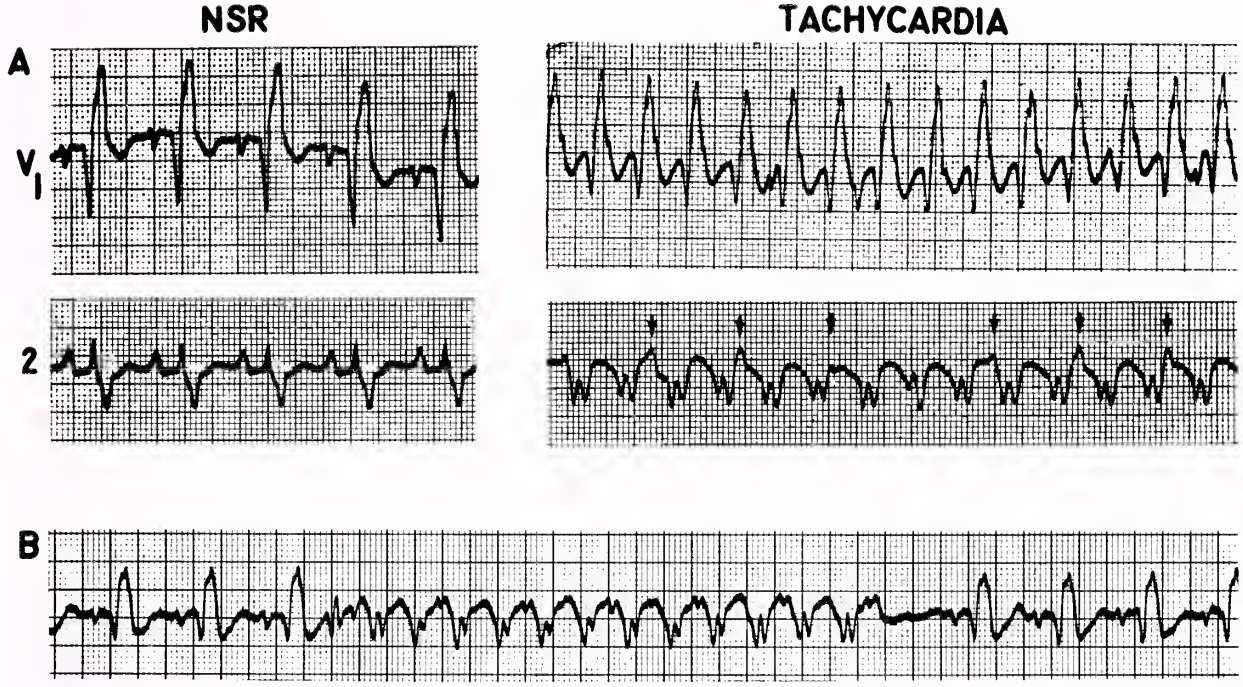

Fig. 3

3. FALSE ATRIAL TACHYCARDIA

The Wrong Answer: A 47-year-old male with an anterior myocardial infarction developed the tachycardia depicted in Fig. 3A twelve hours after admission. The heart rate was 175 per minute and the QRS form (RBBB morphology) was almost identical to the QRS form when the patient was in normal sinus rhythm (left panel of Fig. 3A). Since there was no change in QRS morphology and since the rate was absolutely regular, it was presumed that this was a supraventricular tachycardia. Carotid sinus massage produced no effect and the tachycardia persisted despite 0.5 mg. digoxin given intravenously.

The Right Answer: Ventricular tachycardia probably of left ventricular origin. Bedside examination in this case quickly gave the valuable clue that the first mitral sound varied from heart beat to heart beat and that there were giant cannon waves in the neck veins. A 12-lead ECG showed that in all leads other than V_1 the QRS morphology was distinctly different from that seen in normal sinus rhythm. In Lead 2 particularly, during the tachycardia, a slower independent atrial rate could clearly be seen (arrows) whereas this observation was difficult to make in V_1. Two boluses of lidocaine restored normal sinus rhythm in eight minutes.

Two days later the patient had another episode of tachycardia, but on this occasion his V_1 monitor lead clearly showed altered QRS morphology (Fig. 3B) and lidocaine was again given.

It is often difficult to make a firm conclusion about the origin of a broad QRS complex tachycardia using only right precordial rhythm strips.[4] Two things can be done to help clarify the situation:

1. Examine the patient at the bedside for varying first apical heart sound and cervical vein cannon waves.
2. Obtain a 12-lead ECG.

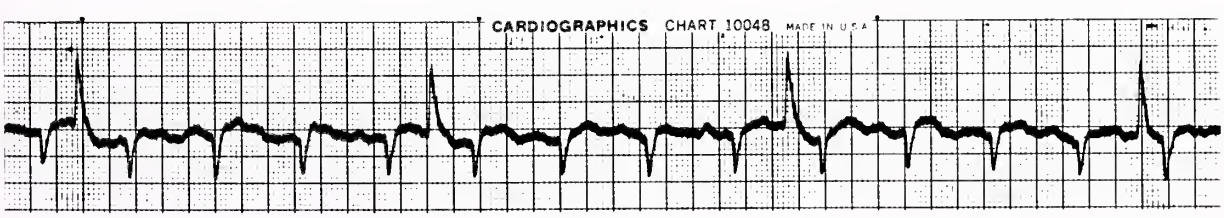

Fig. 4

4. THE FALSE PARASYSTOLE

The Wrong Answer: Twenty-four hours after admission the ECG depicted in Fig. 4 was taken on an elderly white female suspected of having an acute myocardial infarction. The broad upward-pointing "QRS complexes" were considered to be PVD's but they were unresponsive to intravenous lidocaine therapy. This is a poor rhythm strip because the P-waves are unclear, although a 12-lead ECG confirmed the presence of normal sinus rhythm at a rate of 98 per minute. The attending physician was intrigued by the variable coupling of the "PVD's" and the fact that they occurred at a constant rate of 22/minute. It was for these reasons that a parasystolic mechanism was suspected.

The Right Answer: A curious CCU nurse was puzzled at her inability to see the "PVD's" on the patient's bedside oscilloscope at a time when they were clearly visible on the central monitoring oscilloscope. She was also surprised that these "PVD's" should have absolutely no effect on the basic sinus rhythm (no post-extrasystolic pauses). She observed that the "PVD's" appearing on the central scope occurred at the exact time of the return sweep of the bedside scope. This allowed her to deduce that they were electronic artifacts arising from the sweep-circuit mechanism of the bedside scope. This explained their unusual behavior as well as their unresponsiveness to antiarrhythmic therapy. The patient's leads were removed and the central scope continued to show these abnormal beats at a rate of 22/minute. In this day of electronic devices one must be careful not to be deceived by artifacts.

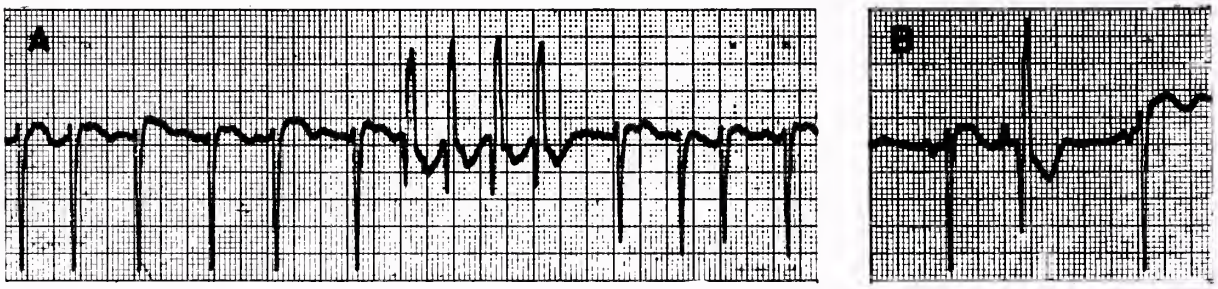

Fig. 5

5. FALSE VENTRICULAR TACHYCARDIA

The Wrong Answer: A 37-year-old woman with rheumatic heart disease was admitted to the CCU prior to heart catherization to be done the following day. During the night of admission she developed atrial fibrillation with a rapid ventricular response. In Panel A of Fig. 5 we see her rhythm after 0.25 mg. of digoxin had been given. The abnormal QRS complexes in the middle of this strip led to considerable concern about the presence of ventricular tachycardia; oral quinidine and intravenous lidocaine were given without appreciable effect. Short bursts of broad QRS complex tachycardia continued to appear. No further digoxin was given because of the fear of digitalis intoxication. During the next 12 hours her ventricular rate averaged 150 and she developed acute pulmonary edema.

The Right Answer: The four-beat run of abnormal QRS complexes in Panel A most likely represents a rate-related type of AVC. Note the RBBB QRS morphology and slight irregularity of the RR intervals during the period. Although it is not typical RBBB (because the initial deflection of the QRS complex is different from that of the normally conducted beats), it is close enough to strongly suggest AVC.[5]

A physician reviewed earlier rhythm strips preceding the atrial fibrillation and noted that a few PAD's had been seen. Panel B (Fig. 5) shows a PAD with aberrant conduction identical to the QRS in the so-called "ventricular tachycardia". The proper therapy was to proceed with full digitalization despite the AVC. Valuable hours were lost in this case by withdrawing digitalis because of fear of digitalis toxicity.

Fig. 6

6. FALSE AV BLOCK

The Wrong Answer: Twenty-four hours after admission a 51-year-old white male with an inferior wall myocardial infarction developed the rhythm depicted in Fig. 6. On admission he had had sinus bradycardia which responded well to atropine. It was concluded that he had second degree AV block with periods of AV Wenckebach block, and serious consideration was given to the insertion of a transvenous pacer.

The Right Answer: The physician would not have been deceived had he carefully measured the PP intervals which should be constant in AV Wenckebach block in sinus rhythm. Observe that each pause in the heart rhythm is preceded by a premature P-wave. The pause, then, is produced not by AV block, but by a PAD which occurs so early that it cannot be conducted to the ventricles. The physician was further deceived by thinking that there was a gradual increase in the PR interval during each period of group beating. Actually there is not; the PR interval after the long pause is 160 msec. (reflecting improved AV conduction after a rest) while all other PR intervals are constant at 200 msec. This is quite in contrast to the usual progressive prolongation of the PR intervals seen in a true Wenckebach AV block.

The treatment in this case should be directed toward abolishing ectopic atrial activity rather than correcting a non-existent second degree AV block. There is some evidence that these non-conducted early PAD's may be the result of an atrial echo; that is, the depolarization wave returns from the AV junction and re-enters the atrium to produce retrograde atrial activation.[6]

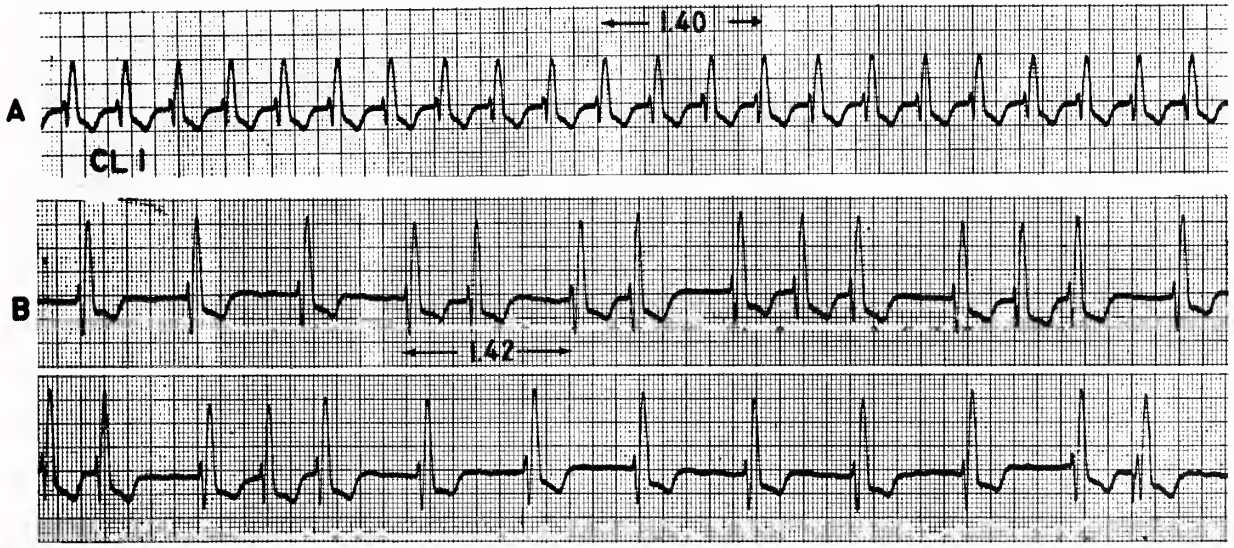

Fig. 7

7. THE REGULAR IRREGULARITY

The Wrong Answer: A 47-year-old male with chronic rheumatic heart disease and previous valve surgery was admitted to the hospital because of increasing congestive heart failure and episodes of syncope. His previous ECG's had shown RBBB and atrial fibrillation. He was on maintenance digitalis. Fig. 7 (Panel A) depicts a tachycardia that was seen shortly after his admission to the hospital. This was correctly interpreted as an AV junctional tachycardia probably due to digitalis toxicity. The heart rate is regular at 130 and the QRS morphology (RBBB) was entirely unchanged from previous ECG's. Digitalis was withdrawn and a mild hypokalemic state was corrected. Twenty-four hours later the rhythm depicted in Panel B was seen. The ventricular rate was now irregular, and it was presumed that his usual random AV conduction from the fibrillating atria had been resumed. Since the AV junctional tachycardia was no longer in evidence, it was felt that it was safe to proceed with DC cardioversion.

The Right Answer: While preparations were being made for cardioversion, it was noted that there appeared to be some pattern in the QRS grouping and not just the usual randomization of the RR intervals customarily seen in the ventricular response in atrial fibrillation. Close observation showed a regularly repeating pattern of QRS complexes. It was noted that there were groups of two or three QRS complexes with slight acceleration during each group and then pauses which were shorter than two-cycle lengths. This immediately suggested a Wenckebach type of conduction and further measurements showed that the longer intervals in B were exact multiples of the

basic RR interval in A. Thus it was concluded that the AV junctional tachycardia was still present and that there were periods of 3:2 and 4:3 Wenckebach conduction from the AV junctional focus to the ventricles. There were also long periods of 2:1 block. Thus it was obvious that digitalis toxicity as manifested by AV junctional tachycardia was still very much in evidence.[7]

Had cardioversion been attempted at the time of Panel B the results could well have been disastrous because of the well-known fact that cardioversion in the face of digitalis toxicity frequently leads to serious ventricular arrhythmias.[8] Proper therapy was to continue to withhold digitalis and to try to control the AV junctional tachycardia with intravenous diphenylhydantoin or propranolol.

Summary

Error in the diagnosis of an arrythmia may result in inappropriate or harmful treatment of the patient. Seven "Wrong Answers" illustrating the hazards of errors in interpretation of the ECG have been presented. •

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The Utah MEDEX demonstration project*

William M. Wilson, MA, and C. Hilmon Castle, MD,
Salt Lake City, Utah

One approach to the Intermountain Region's Health Manpower Problems.

IN MANY AREAS OF THE Intermountain Region, particularly within rural and inner city communities, primary physicians are over-worked and over-extended in their attempts to provide high quality health care services to their patients. The Utah MEDEX Demonstration Project represents an innovative approach to confronting the Region's critical health manpower shortage and the attendant problems of impeded patient access to health services and further maldistribution of physicians among rural and urban communities.

Utah MEDEX was formally initiated at the University of Utah Medical Center in June 1971 by the Department of Community and Family Medicine (DCFM), the Intermountain Regional Medical Program (IRMP), and the Utah State Medical Association (USMA) after nearly two years of coordinated local effort.[1] The project is part of a national MEDEX demonstration which includes five other MEDEX projects currently underway in Seattle, Washington; Los Angeles, California; Grand Forks, North Dakota; Birmingham, Alabama; and Hanover, New Hampshire. Utah MEDEX is experimental and is designed as a vehicle for testing in the Intermountain West the hypothesis that former military medical corpsmen can be successfully trained and utilized to improve the delivery of primary health care.

Description of the Project

During the next two years, Utah MEDEX will train two classes of 12 (24 total) carefully selected former military medical corpsmen (a large and untapped source of partially trained medical manpower) for utilization within the private practice of medicine under the supervision of physicians providing primary care. As presently organized, the training program is 15 months in length and is bi-phasic. The first phase is didactic and takes place within the University of Utah Medical Center. Emphasis centers upon the transition from military to civilian medical practice and the acquisition and strengthening of skills not acquired in the armed services, particularly those which deal with children, older people, and women. The second is a preceptorship phase of training which takes place in the community under the guidance of physician-preceptors and College of Medicine faculty. Continuing education programs and clinical refresher courses are conducted on a regular basis and special short-term training courses within the Medical Center are available to both Medex and preceptors, during and after training.

*MEDecin EXtension=Physician's Extension. When the word MEDEX appears in capital letters, reference is to the training program. When in lower case letters, Medex, reference is to the trainee. Mr. Wilson is an instructor in the Department of Community and Family Medicine and deputy director of the Utah MEDEX Project, University of Utah Medical Center, Salt Lake City, Utah; Dr. Castle is professor and chairman of the Department of Community and Family Medicine and principal investigator of the Utah MEDEX Project, University of Utah Medical Center, Salt Lake City, Utah.

[1] The project is supported by funds (until May 1973) from the National Center for Health Services Research and Development, Health Services and Mental Health Administration, U.S. Public Health Service, Department of Health, Education and Welfare, and the Intermountain Regional Medical Program.

The medical skills and knowledge prescribed reflect the requirements of each physician's practice. Physician-preceptors participate throughout the educational program to insure that training will reflect the medical characteristics of those practice settings wherein the Medex will function. As a result, training is directed towards developing the Medex's competency in specific areas identified by the practicing physician. The abilities which the Medex bring with them from their training in the armed services are taken into account in tailoring the curriculum to fit the needs of each individual.

The first class of 12 trainees in Utah began September 7, 1971, and the second class will begin in March 1972. It appears as though the Medex will extend their physicians' capacity in numerous ways; i.e., taking histories, doing physical examinations, screening patients, managing minor medical problems, assisting with house calls, responding to emergency calls, assisting at surgery, performing laboratory tests, and providing follow-up and patient education. It is anticipated that not only will the physician's practice unit see more patients and provide more comprehensive services but also that the physician will be able to pursue his continuing education more vigorously, spend more time with complicated medical procedures, and increase his involvement in his community's health problems.[2]

Methods for determining the overall impact of MEDEX upon the organization and delivery of health care have been developed for Utah MEDEX as well as for the other MEDEX projects across the country. The Utah MEDEX evaluation will determine, among other things, whether or not the addition of a new member to the health care team significantly affects patient satisfaction, access to care, and efficiency of the health care delivered within the existing rural practice setting.

[2] Smith, Richard A., Anderson, James R., and Okimoto, Joseph T.: "Increasing Physician Productivity and the Hospitalization Characteristics of Practices Using Medex —A Progress Report," Northwest Med. 70:701, 704, 706, October 1971.

Trainee Selection

Selection of Medex candidates for admission to the program is based upon carefully defined criteria and is accomplished by a committee consisting of practicing physicians, medical educators, and MEDEX staff. The most important criteria used for selection are that a candidate be an ex-military medical corpsman who has been trained to the level of "independent duty" or equivalent, has demonstrated excellent medical performance in the past, is highly motivated to adopt MEDEX as a career, and can comfortably live and work in a rural setting.

All applicants are screened according to these criteria, and outstanding candidates are invited to Salt Lake City for further evaluation and interviews with preceptors, staff, and consultants. Over 1,300 applicants were screened prior to selection of the 12 Medex currently in training, and 26 were invited for interviews.

The average age of the men in the first class is 28 years. Eleven are married and all are committed to living and working in the Intermountain Region. They have had from three to 20 years medical experience in the military and all have received from 1,400 to 2,000 hours of formal medical training. Eleven have been enrolled in college, and the group has an average of over two years of college experience.

Preceptor Selection

Identification and selection of physicians who desire to become preceptors is accomplished by an Advisory Committee consisting of representatives from the Utah State Medical Association, the Department of Community and Family Medicine, the Intermountain Regional Medical Program, and the Utah Chapter of the American Academy of Family Practice.

To become a preceptor, a primary physician must agree to meet specific criteria inherent within the MEDEX concept. The three most important are that the preceptor agree (1) to accept the Medex as a co-professional with whom he can work in providing high quality patient care; (2) to enter activity into a sustained teaching effort in his relationship with his Medex; and (3) to participate

in both the on-going and final evaluation throughout the Medex's traineeship.

In addition, potential preceptors must be engaged in delivering primary care, busy to the point that they are overextended, well-accepted and secure in their communities, and willing to employ a Medex at the completion of training. Preference will be given to those physicians who have the greatest need for assistance, who are under 55 years of age, and who practice in communities where additional health services are needed.

All Utah MEDEX preceptors are appointed as clinical instructors in the Department of Community and Family Medicine. Educational opportunities are provided for both preceptors and Medex for increasing their abilities as teachers and providers of comprehensive health care.

Preceptor-Medex Matching

Because preceptors are identified prior to and participate in the selection of the trainees, the MEDEX model incorporates a "built-in deployment system" which insures for each Medex a place to work and learn from the outset of training. Matching the Medex with their preceptors is accomplished through a series of personal visits of each Medex and his family to those practices and communities attractive to them and through visits, interviews, and observations made by the preceptors, faculty, and staff during the early phase of their training at the University Medical Center.

Preceptors rank those trainees who are acceptable in their own practices, and matching is accomplished when both a Medex and a preceptor indicate mutual enthusiasm for working together. Thus, both individuals painstakingly select each other and, in so doing, greatly increase the probability that they will form a compatible and productive relationship both during and after training.

The MEDEX Curriculum

The content of the Utah MEDEX curriculum is determined, primarily, by three important sets of data: (1) the results of task analyses of each preceptor's practice which identify those skills and competencies essential to the success of a Medex in each setting; (2) the knowledge and skill levels which the Medex bring with them from the military; and (3) the individual learning capacities of each trainee.

The Utah MEDEX Curriculum Committee began developing curriculum content using information collected from physicians in rural Washington who had had experience in training and using Medex in family practice, as well as from information obtained through personal interviews with preceptors selected in Utah. The process used for developing the curriculum and organizing learning experiences was as follows:

Behavioral objectives considered to be appropriate and feasible by the end of the 15-month formal training were constructed and those considered essential by the time the trainee entered the preceptor phase were planned for during the on-campus university phase. The behavioral objectives emphasized skills in data collection (i.e., history, physical, and laboratory tests); organization and retrieval of information (i.e., use of library, review of medical literature, writing of problem oriented records); and the signs and symptoms of diseases and health problems commonly seen in family practice (i.e., well-baby, prenatal and periodic health examinations, upper respiratory infections, gastrointestinal disturbances, hypertension, and anxiety). Preceptors were given an opportunity to review and revise the list of objectives. Specific differences among the preceptors and tasks identified by only one or two of the preceptors were set aside from the general list for special attention by the individual trainees who "matched" with those preceptors with special needs.

From the outset, the MEDEX faculty emphasized that each trainee must ultimately take responsibility for his own learning and that, prior to completion of the on-campus phase (three and one half months) of formal training, he must demonstrate the ability to learn on his own by using existing faculty and other available resources. The objectives written by the faculty and preceptors were shared with the trainees, and methods for accomplishing the objectives and level of performance expected at various time intervals

were worked out with the faculty and trainees together. This approach allowed a more flexible curriculum and creative learning experience. Hopefully, this approach will make continuing education more likely since the responsibility for learning will be accepted by the trainee while he is still in his formal training period and before he is certified. For certification, each trainee will be tested appropriately for each objective and must demonstrate his competency to a review committee consisting of faculty and practitioners.

With this approach, the types of sessions actually scheduled in the curriculum became less important. Nevertheless, it has been necessary to form structured learning experiences in order to gain efficiency in the time spent by faculty and trainees. In general, the scheduled time was divided about equally between classroom didactic demonstrations and practice versus clinical experience with patients. Practical experience with procedures was continued until the trainees were able to perform at the level considered satisfactory. In addition to the core faculty, which conducted the classroom sessions and supervised practice of procedures, each group of three trainees had an individual instructor who met with them several times weekly to review patients seen in clinical experiences or patients from whom they had taken histories, done physicals, and outlined a problem-oriented record. Additional electives were arranged (i.e., operating room, emergency room, and teaching clinics), and involvement in these were initiated by the trainee during unscheduled times.

Medical-Legal Considerations

The creation of a receptive legal framework is essential before a Medex can be deployed to practice. Several states, including Utah, have already modified their medical practice acts to allow physicians' assistants to work under the supervision of physicians licensed to practice within their borders, and other states are currently preparing such enabling legislation.

Upon successful completion of training, each Medex will be certified by the faculty and the Project formally approved by the Utah State Medical Association. In addition, the USMA considers it essential to certify physicians employing a Medex. Development of methods for certifying other types of physicians' assistants within the State of Utah is under consideration; however, specific criteria for certification have not yet been adopted.

Professional liability insurance for physicians' assistants has been developed by a few insurance carriers and is available to both Medex and preceptors in most states. In addition, insurance coverage for all trainees in the University Medical Center has been extended to cover the Medex during training in Utah.

Summary

We have initiated one approach to the Intermountain Region's well-recognized health manpower shortage which has long been the focus of public and professional concern. The Utah MEDEX Demonstration Project will allow us to test the assumption that highly trained and carefully selected ex-military medical corpsmen can extend the capacity of overworked local practitioners to provide more high-quality health services to their patients. Through Utah MEDEX we will have the opportunity to accumulate valuable experience and information concerning the day-to-day professional problems which appear to discourage young physicians from practicing in rural settings and will, hopefully, create renewed interest in experimenting with new approaches to delivering health care. •

Tarahumara Indians*

Reed S. Clegg, MD, Salt Lake City, Utah

HIGH IN THE Sierra Madre Mountains of North Central Mexico, at an elevation of 8,000 feet, there are some 50,000 Tarahumara Indians who live a very isolated life. These people are so primitive that they have retained their ancient language and cannot converse with the surrounding Mexicans. They are remarkable in their ability to run races up to 160 miles and to obtain deer and rabbit meat by outdistancing the animals.

Our primary endeavor was to study the physical capabilities of this tribe which lives as it did some 2,000 year ago. These people have retained an athletic ability unsurpassed anywhere else in the world.

We trucked to a remote Jesuit Catholic Mission in one of the small villages high in the Sierra Madres to personally observe and document domestic life in this isolated region. Summer studies were most profitable as the tribe lived on the high plateaus farming and grazing their poor ground. Since the bitter cold winters are accompanied by heavy snows, the Indians hibernate in caves at lower elevations, existing on accumulated supplies.

These people are small in stature, averaging 135 pounds in weight, and do not have the large barrel chest one might expect to find. (Fig. 1) Their athletically contoured legs rarely show such developmental defects as varicose veins, phlebitis, corns, callouses, or bunions; the soles of the feet have soft, thick skin from running barefoot. The average longevity is 43 years, and mothers give birth to ten or eleven offspring in order to raise two or three children. Common causes of childhood mortality include malnutrition, starvation, dysentery, polio, and infant infections that are controlled in our country.

Fig. 1

In general the people appear intelligent although lacking in knowledge. Our psychiatrist felt they learned to play chess in a very short period of time and had tremendous memories for experiences encountered. The men often sit stolidly for long periods without conversing while the women gather in groups, chatting and laughing. These people have been spared the ravages of war because of the scarcity of desirable natural resources and because of their nonaggressive homeland contentment. They are accustomed to barter and exchange with farm and material objects without the necessity of money. This complacent way of life has resulted in only one known case of homicide and no suicides during the past 70 years. They do not have a polygamous family standard but rather a serial type of home setup

*Study made with 22 University of Oklahoma specialists including physiologists, biochemists, anthropologists, physicians, dentists, and interpreters.

where one man may, by necessity, leave his wife with a neighbor while tending goats or sheep some miles away. His friend will later reciprocate in this acceptable exchange program.

To acquire data of their running ability we began physical evaluations one week prior to the race. Our nutritionists lived in the runner's homes, calculating all fluid and food intake and output as well as blood, urine, and fecal evaluations. We reviewed daily physical findings, vital capacities, electrocardiograms, and other clinical studies as well as obtaining moving pictures and treadmill tests. The Indians wear diaper-type clothing and kick a wooden ball the size of an orange throughout the entire traditional 160 mile race. (Fig. 2) They flip kick the sphere, with great accuracy, approximately six feet high and some 30-40 feet ahead as they run along rough winding trails. Families follow along beside the racers giving cheer and at night showing the way with branches dipped in lighted turpentine.

Approximately every 13 miles the runners pause to care for toilet needs and to imbibe nourishment consisting of small amount of food and water. At these temporary "pit stops" we were able to supplement the portable kymograph studies with pulse, respirations, blood pressure, blood and urine samples, and weight studies.

As far as running technics were concerned, there appeared to be very little difference from the stride and stance observed in our Olympic racers who compete for only 26 miles.

Their running ability seems to be a result of the following: (a) Heredity—2,000 years of outdoor living with running essential for survival. (b) Body conditioning—well muscled without obesity. (c) Diet—corn, peas, beans, squash, and jerky meat. (d) Competition—their only sport—strong competitive drive. (e) Amusement—sport universally enjoyed by all. (f) Psychological—religious hero worshipping.

Fig. 2

These kick ball racers are capable of using more than 10,000 Kcal per 24 hours which surpasses the usage of all other athletes and is generally considered to be the upper limits of work effort voluntarily accomplished by human beings. Their resting heart rate and blood pressure are about 20 per cent below normal. The average serum cholesterol of approximately 79 milligrams per cent increased 20 per cent with running while the average hematocrit of 51 increased about 10 per cent.

From a nutritional standpoint, one cannot help but be disturbed by the recent introduction of sweets which has produced extensive degeneration of teeth. Alcohol, when available, has elicited a distressing intolerance. It is hoped that civilization will not be introduced so rapidly as to upset their balance with nature and destroy their contented happy way of life.

Public health measures such as vaccination, antibiotics, and food supplements would improve longevity without destroying the entire cultural civilization. •

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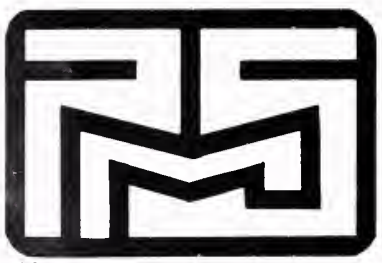

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COLORADO

Outstanding Civilian Service Award

The Surgeon General of the U. S. Army has awarded the outstanding civilian service award to Dr. Foster Matchett, associate clinical professor of orthopaedics, emeritus of the orthopaedic service of the University of Colorado School of Medicine for his service as consultant in orthopaedics at Fitzsimons General Hospital.

Dr. Matchett was the original orthopaedic consultant to Fitzsimons General Hospital following World War II, having been so designated June 6, 1946. He served continuously until July 1, 1971, when at his own request, he was relieved of the duties after 25 years.

Dr. Matchett came to Denver in 1938 immediately from his orthopaedic training in Cleveland, Boston, and Philadelphia. He was head of the orthopaedic outpatient and inpatient services at the University of Colorado College of Medicine for nearly four years prior to his joining the 29th General Hospital as chief of the orthopaedic service which he headed for three and one half years during World War II. On his return to Denver he continued his clinical orthopaedic service work at the University of Colorado Medical School, Denver General Hospital, and at the Veterans Administration Hospital. For six and a half years he was chief of the Orthopaedic Residency Training Program at Denver General Hospital.

At the present time he is very busy carrying on his enjoyable private practice at St. Joseph, Children's, and Presbyterian Hospitals in Denver.

UTAH

Dr. Morginson Receives High Honor

Dr. William J. Morginson, Salt Lake City dermatologist, was recently presented the Honor Award of the Pacific Dermatologic Association at its annual meeting in Guadalajara, Mexico. The Association, which has membership of 800 drawn from the Rocky Mountain States, the Pacific Coast States, and all other countries bordering on the Pacific Coast, presents only two of these awards each year.

Dr. Morginson, who was a founding member of the Pacific Dermatologic Association, has served as its Vice President and President and is currently a member of the Board of Trustees. In addition to his duties as an officer of the Association, he has also served on several of its committees.

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OBITUARIES

Colorado

Leroy Elrick, MD, died at Saint Luke's Hospital in Denver on Friday, November 12, 1971. Doctor Elrick was born November 6, 1896, in Wichita, Kansas. He received his pre-medical education from 1915 to 1917 at Ottawa University, Ottawa, Kansas, and Kansas University. His MD degree was received from the University of Colorado in 1923. Doctor Elrick then had postgraduate training at the Agnes Memorial Sanatorium (tuberculosis) in Denver, Colorado, from 1924 to 1927 and 1930 to 1932. He received his license to practice in Colorado in 1923.

Doctor Elrick was married to Myrtle Aloyce Gilgen of Burlington, Colorado, in May 1931.

In 1955 Doctor Elrick was presented with The Alumnus Gold Plaque Award for 25 years of service as an assistant professor at the University of Colorado School of Medicine. He was a member of the Denver Medical Society, the Colorado Medical Society, the American Medical Association, the American Trudeau Society, the Colorado Society of Internal Medicine, and the American Academy of Tuberculosis Physicians. His practice was limited almost entirely to pulmonary diseases.

Surviving in addition to his widow are a daughter, Miss Virginia Elrick of Denver; a son, Donald L. of Boulder; and a brother, Fred J. of Richmond, Virginia.

Virgil Richard Fortin, MD, died Friday, November 12, 1971, at Mercy Hospital in Denver after a long illness. Born in Clyde, Kansas, December 21, 1912, he received his pre-medical education at Creighton University, obtaining a BS degree June 1, 1940, and his MD degree December 20, 1943. Doctor Fortin was licensed in Nebraska in 1944 after an internship at Santa Rosa Hospital in San Antonio, Texas. A year later he was licensed in Colorado, where he engaged in General Practice, and was a member of the Denver Medical Society, the Colorado Medical Society, and the American Medical Association from 1945 to 1966, when he became ill. He remained on the staff of Mercy Hospital, but practiced very little after his illness.

Surviving him in addition to his widow, Mary C. Mathews, to whom he was married on December 31, 1941, are two sons, Richard and Greg, both of Denver; two daughters, Mrs. Joan Haan and Mrs. Michelle Atencio, both of Denver; two brothers, Bert Fortin of Sturgis, South Dakota, and Armond Fortin of Upton, Wyoming; a sister, Mrs. Eva Brooke of Sheridan, Wyoming; and six grandchildren.

John M. Lipscomb, MD, age 80, died at his home in Denver on November 11, 1971, after a long illness. He was born on August 22, 1891, in Nashville, Tennessee, and was graduated from Vanderbilt University in Nashville in 1914. Doctor Lipscomb interned at St. Vincent's Hospital in Birmingham, Alabama (1914-1915), had postgraduate training at Long Island College in Brooklyn, New York (1915-1916), and a residency at Elizabeth Steele McGhee Hospital in Pittsburgh, Pennsylvania (1917-1918). He obtained his license to practice in Tennessee in 1918 and moved to Colorado in 1920, where he practiced until his retirement in 1968. Doctor Lipscomb specialized in urology, obtaining certification by the Board of Urology in 1936. From 1917 to 1919 he held the rank of first lieutenant in the Medical Corps of the U.S. Army. In 1920 he was married to Miss Mary A. Seubert, who died in 1968.

Doctor Lipscomb was a member of the Denver Medical Society, the Colorado Medical Society, the American Medical Association, and the American Urological Association. He also belonged to the American Legion Post 1, the Denver Country Club, the Wigwam Fishing Club, and Emulation Lodge 154 A.F.&.A.M.

Surviving are two daughters, Mrs. Mary L. Broderick of Morrill, Nebraska, and Mrs. Barbara L. Hay of Denver; a sister, Mrs. Margaret Thompson of Nashville, Tennessee; nine grandchildren, and five great-grandchildren.

Montana

Louis William Allard, MD, died on November 10, 1971, at Western Manor, Billings, where he had lived since 1966. Doctor Allard was born in Laurel, Montana, on November 15, 1887. He received his BS degree from the University of Wisconsin in 1910 and his MD degree from Rush Medical College in 1912. After completing his internship at St. Mary's Hospital in Milwaukee, he returned to Billings for the practice of his profession. Early in his career, he limited his practice to orthopedic surgery and continued the practice of this specialty until his retirement in 1966.

Doctor Allard was particularly interested in the field of rehabilitation and in service to crippled children. He was cited for citizenship by Governor Roy Ayers, and his service to polio-crippled children earned him the DeSmet Medal awarded by Gonzaga University. The Sisters of Charity of Leavenworth, who staff St. Vincent's

Hospital in Billings, called Doctor Allard "the cornerstone of St. Vincent's". He helped organize the Crippled Children's Hospital in Billings in 1914 and the Montana Association for Rehabilitation, as well as auxiliaries for crippled children in Missoula, Butte, and Anaconda. Several years before his retirement, he organized Handicapped, Inc., in Billings. Perhaps the highest of many honors accorded Doctor Allard was awarded in 1930 when Pope Pius XI made him a Knight of the Order of St. Gregory for "service to humanity".

Doctor Allard was a past president of the Rotary Club of Billings, a Fourth Degree Knight of Columbus, and was most interested and active in many other community affairs. During his entire career he was a member of the Yellowstone Valley Medical Society, the Montana Medical Association, and the American Medical Association. Doctor Allard served as a member of many active committees of his state Association and as its president in 1947-48. In 1962 Doctor Allard became a member of the Fifty Year Club of the Montana Medical Association. His contributions to his community, his patients, and the medical profession were legion.

Utah

Peter Rich Johnston, MD, retired Ogden physician and surgeon, died November 10, 1971, at the age of 74. Born on June 7, 1897, in Salt Lake City, he was the son of Peter G. and Alice Duckworth Johnston. He married Blanche Budge on September 24, 1926, in the Logan L.D.S. Temple.

Doctor Johnston received a BS degree from Utah State University in 1923, and his MD degree from Washington University, St. Louis, Missouri, in 1939. He served both his internship and residency at St. Louis County Hospital. A member of the Weber County, Utah State, and American Medical Associations, Doctor Johnston was former chief of staff of the Dee Memorial Hospital in Ogden. He also had served as Weber County physician, and consultant to the State Rehabilitation Services.

Surviving the doctor are his widow; sons, Dr. Peter B. of Chicago, Illinois, and Dr. Oliver B. of Salt Lake City; daughters, Mrs. Lee (Jan) Robb of Salt Lake City; Mrs. John A. (Bee) Guzzetta of New York City, and Mrs. Ted G. (Joni) Balderree, Kaneohe, Hawaii; 19 grandchildren; and two sisters.

William R. Middlemiss, MD, retired Salt Lake City physician and surgeon, died November 22, 1971, at the age of 75. The son of William and Roselind Bridge Middlemiss, Doctor Middlemiss was born December 25, 1895, in Salt Lake City. He was married to Josephine Rose Haslam on July 17, 1919.

A graduate of the L.D.S. High School, Doctor Middlemiss received a BS degree from the University of Utah in 1918. He attended Columbia Medical School, and received his MD degree in 1921 from the University of Maryland College of Physicians and Surgeons. He served an internship at the Salt Lake County General Hospital and did additional postgraduate work in Chicago, Minnesota, and New York City. He began his private practice in Salt Lake City in 1923, and was a member of the L.D.S. Hospital medical staff until his retirement in July of 1971.

Doctor Middlemiss was a member of the Salt Lake County, Utah State, and American Medical Associations. He was also a member of the L.D.S. Church. Instrumental in organizing the Salt Lake Men's Garden Club, he served as the club's first president and was also a member of the Utah Rose Society.

Survivors include the doctor's widow; a son and daughter, William J. of Oakland, California, and Mrs. Darrell (June) Madsen of Salt Lake City; eight grandchildren; four sisters, and one brother.

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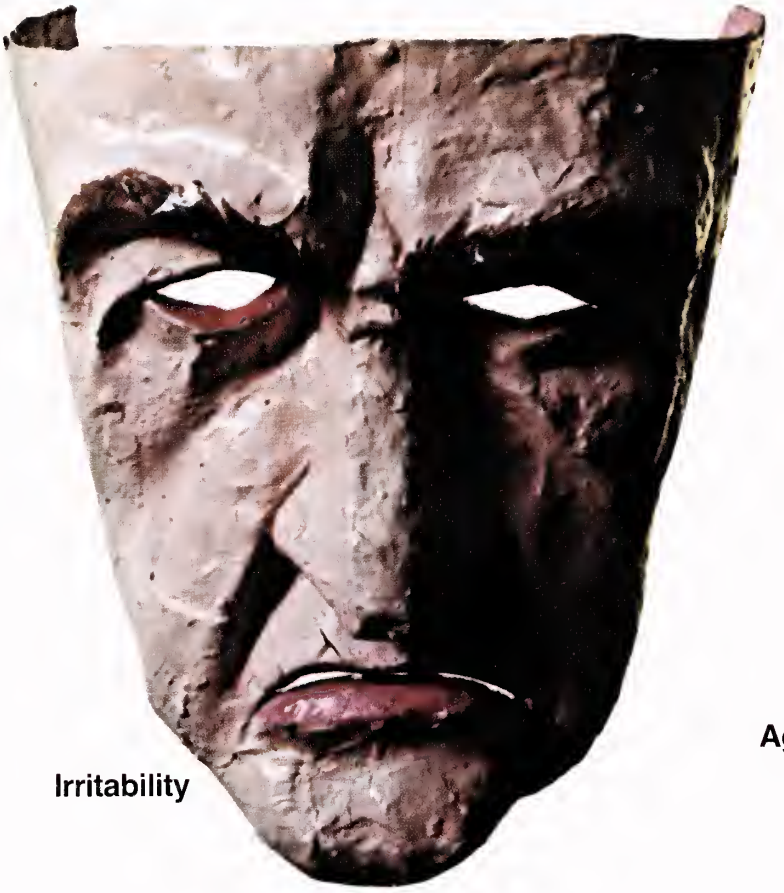

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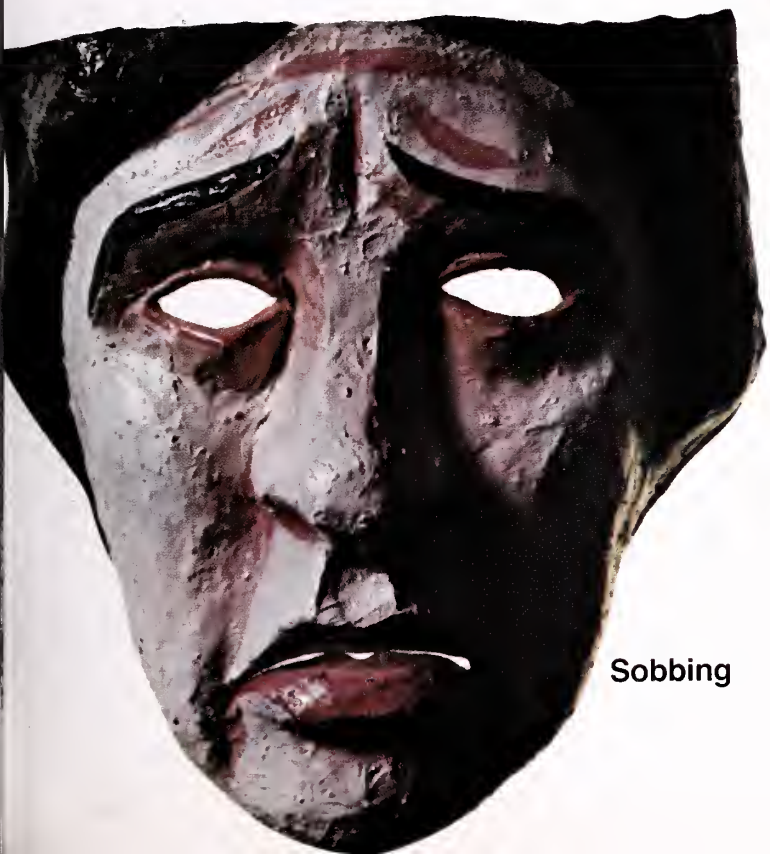

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Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

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Alternate Delegates to the A.M.A.: R. Neil Chisholm, Denver, Dec. 31, 1973; John M. Wood, Englewood, Dec. 31, 1972; William Y. Takahashi, Boulder, Dec. 31, 1973.

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1. Demeulenaere, L.: Action du R 1132 sur le transit gastro-intestinal, Acta gastroent. Belg. ***21****:674-680 (Sept.-Oct.) 1958.*

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5-8 yr.....1 tsp. q.i.d. (8 mg.)
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*Based on 4 cc. per teaspoonful.

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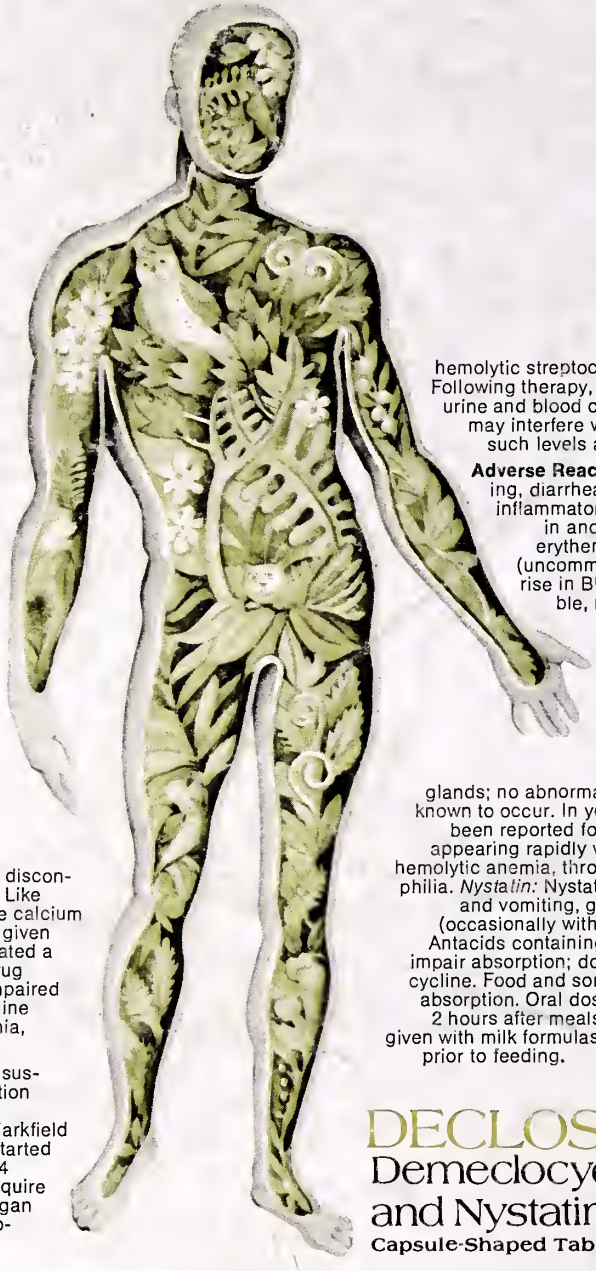

Actions: Tetracyclines are active against a wide range of gram-negative and gram-positive organisms. Nystatin is an antifungal agent against *Candida* (monilia) *albicans*.

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Precautions: Use may result in overgrowth of nonsusceptible organisms, including fungi. If superinfection occurs, institute appropriate therapy. In venereal diseases when coexistent syphilis is suspected, darkfield examination should be done before treatment is started and blood serology repeated monthly for at least 4 months. Patients on anticoagulant therapy may require downward adjustment of such dosage. Test for organ system dysfunction (e.g., renal, hepatic and hemopoietic) in long-term use. Treat all Group A beta hemolytic streptococcal infections for at least 10 days. Following therapy, persistence for several days in both urine and blood of bacteriosuppressive levels of drug may interfere with culture studies. Do not consider such levels as therapeutic.

Adverse Reactions: *G.I.:* anorexia, nausea, vomiting, diarrhea, glossitis, dysphagia, enterocolitis, inflammatory lesions (with monilial overgrowth) in anogenital region. *Skin:* maculopapular erythematous rashes. Exfoliative dermatitis (uncommon). Photosensitivity. *Renal toxicity:* rise in BUN, dose-related. Transient, reversible, nephrogenic diabetes insipidus with excessive thirst and polyuria (rare). *Hypersensitivity reactions:* urticaria, angioneurotic edema, anaphylaxis, anaphylactoid purpura, pericarditis, exacerbation of systemic lupus erythematosus. When given over prolonged periods, tetracyclines may produce brown-black microscopic discoloration of thyroid glands; no abnormalities of thyroid function studies are known to occur. In young infants, bulging fontanels have been reported following full therapeutic dosage, disappearing rapidly when drug was discontinued. *Blood:* hemolytic anemia, thrombocytopenia, neutropenia, eosinophilia. *Nystatin:* Nystatin has been associated with nausea and vomiting, gastrointestinal distress and diarrhea (occasionally with large doses). *Concomitant therapy:* Antacids containing aluminum, calcium, or magnesium impair absorption; do not give to patient taking oral tetracycline. Food and some dairy products also interfere with absorption. Oral doses should be given 1 hour before or 2 hours after meals. Pediatric oral doses should not be given with milk formulas, but should be given at least 1 hour prior to feeding.

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Indications: Acute gouty arthritis, rheumatoid arthritis, rheumatoid spondylitis.

Contraindications: Children 14 years or less; senile patients; history or symptoms of G.I. inflammation or ulceration including severe, recurrent or persistent dyspepsia; history or presence of drug allergy; blood dyscrasias; renal, hepatic or cardiac dysfunction; hypertension; thyroid disease; systemic edema; stomatitis and salivary gland enlargement due to the drug; polymyalgia rheumatica and temporal arteritis; patients receiving other potent chemotherapeutic agents, or long-term anticoagulant therapy.

Warnings: Age, weight, dosage, duration of therapy, existence of concomitant diseases, and concurrent potent chemotherapy affect incidence of toxic reactions. Carefully instruct and observe the individual patient, especially the aging (forty years and over) who have increased susceptibility to the toxicity of the drug. Use lowest effective dosage. Weigh initially unpredictable benefits against potential risk of severe, even fatal, reactions. The disease condition itself is unaltered by the drug. Use with caution in first trimester of pregnancy and in nursing mothers. Drug may appear in cord blood and breast milk. Serious, even fatal, blood dyscrasias, including aplastic anemia, may occur suddenly despite regular hemograms, and may become manifest days or weeks after cessation of drug. Any significant change in total white count, relative decrease in granulocytes, appearance of immature forms, or fall in hematocrit should signal immediate cessation of therapy and complete hematologic investigation. Unexplained bleeding involving CNS, adrenals, and G.I. tract has occurred. The drug may potentiate action of insulin, sulfonylurea, and sulfonamide-type agents. Carefully observe patients taking these agents. Nontoxic and toxic goiters and myxedema have been reported (the drug reduces iodine uptake by the thyroid). Blurred vision can be a significant toxic symptom worthy of a complete ophthalmological examination. Swelling of ankles or face in patients under sixty may be prevented by reducing dosage. If edema occurs in patients over sixty, discontinue drug.

Precautions: The following should be accomplished at regular intervals: Careful detailed history for disease being treated and detection of earliest signs of adverse reactions; complete physical examination including check of patient's weight; complete weekly (especially for the aging) or an every two week blood check; pertinent laboratory studies. Caution patients about participating in activity requiring alertness and coordination, as driving a car, etc. Cases of leukemia have been reported in patients with a history of short- and long-term therapy. The majority of these patients were over forty. Remember that arthritic-type pains can be the presenting symptom of leukemia.

Adverse Reactions: This is a potent drug; its misuse can lead to serious results. Review detailed information before beginning therapy. Ulcerative esophagitis, acute and reactivated gastric and duodenal ulcer with perforation and hemorrhage, ulceration and perforation of large bowel, occult G.I. bleeding with anemia, gastritis, epigastric pain, hematemesis, dyspepsia, nausea, vomiting and diarrhea, abdominal distention, agranulocytosis, aplastic anemia, hemolytic anemia, anemia due to blood loss including occult G.I. bleeding, thrombocytopenia, pancytopenia, leukemia, leukopenia, bone marrow depression, sodium and chloride retention, water retention and edema, plasma dilution, respiratory alkalosis, metabolic acidosis, fatal and nonfatal hepatitis (cholestasis may or may not be prominent), petechiae, purpura without thrombocytopenia, toxic pruritus, erythema nodosum, erythema multiforme, Stevens-Johnson syndrome, Lyell's syndrome (toxic necrotizing epidermolysis), exfoliative dermatitis, serum sickness, hypersensitivity angiitis (polyarteritis), anaphylactic shock, urticaria, arthralgia, fever, rashes (all allergic reactions require prompt and permanent withdrawal of the drug), proteinuria, hematuria, oliguria, anuria, renal failure with azotemia, glomerulonephritis, acute tubular necrosis, nephrotic syndrome, bilateral renal cortical necrosis, renal stones, ureteral obstruction with uric acid crystals due to uricosuric action of drug, impaired renal function, cardiac decompensation, hypertension, pericarditis, diffuse interstitial myocarditis with muscle necrosis, perivascular granulomata, aggravation of temporal arteritis in patients with polymyalgia rheumatica, optic neuritis, blurred vision, retinal hemorrhage, toxic amblyopia, retinal detachment, hearing loss, hyperglycemia, thyroid hyperplasia, toxic goiter, association of hyperthyroidism and hypothyroidism (causal relationship not established), agitation, confusional states, lethargy; CNS reactions associated with overdosage, including convulsions, euphoria, psychosis, depression, headaches, hallucinations, giddiness, vertigo, coma, hyperventilation, insomnia; ulcerative stomatitis, salivary gland enlargement. (B)98-146-070-G

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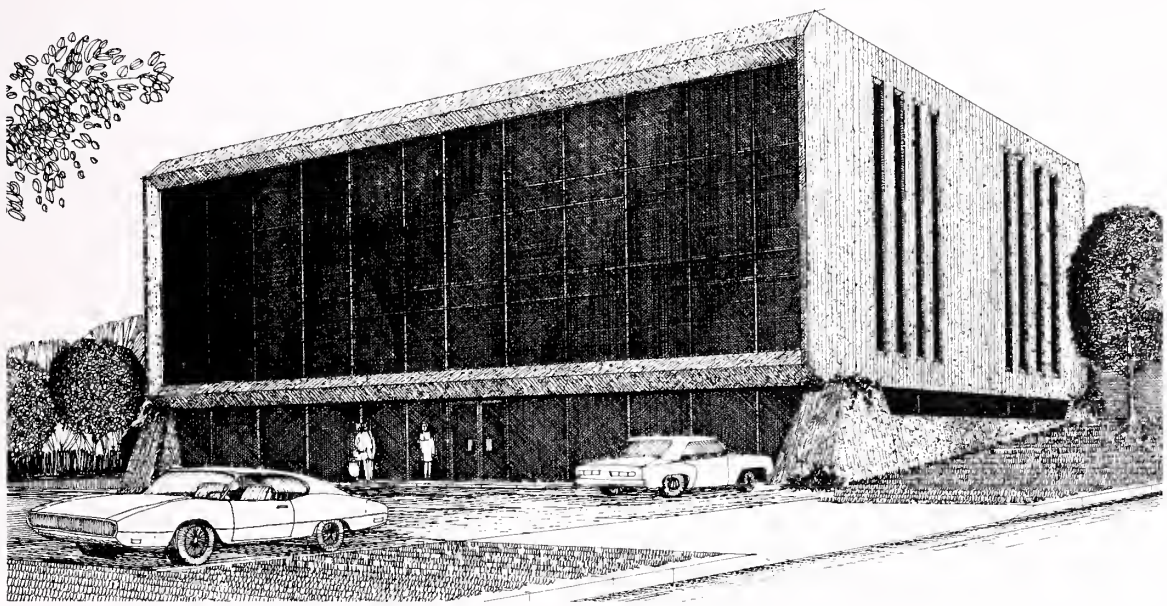

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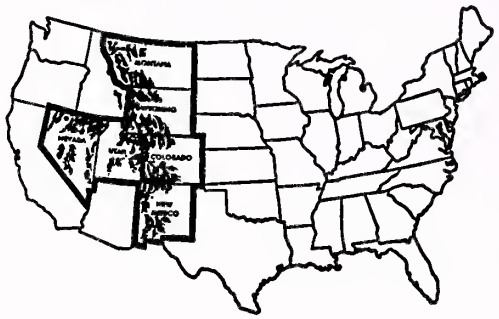

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THE BOOK CORNER

New books received are acknowledged in this section and such acknowledgment must be regarded as sufficient return for the courtesy of the sender. Selection will be made for review in the interests of our readers and as space permits. Books are listed with advance data supplied by publishers. Prices quoted are not guaranteed. For further information, address queries to the publishers. Books here listed are available for lending from the Denver Medical Society Library.

Analysis of the Self: By Heinz Kohut. New York, 1971, International University Press. 352 p. Price: $12.50.

Crafts at Sunset and Other Poems: By Nolie Mumey. Denver, Colorado, 1971, Range Press. 128 p. Price: Gift.

Handbook of Poisoning: By Robert H. Dreisbach. 7th ed. Los Altos, California, 1971, Lange Medical Publications. 515 p. Price: $6.00.

High Altitude Physiology: Edited by Ruth Porter. London, 1971, Churchill Livingstone. 196 p. Price: $10.00.

Lumbar Disc Disease: Edited by Blaine S. Nashold and Zdenek Hrubec. St. Louis, 1971, Mosby. 139 p. Price: $16.50.

Proceedings of the International Conference on Nosocomial Infections: By American Hospital Association, Chicago, Illinois, 1970, AHA. 334 p. Price: $1.50.

Strategy of the Viral Genome: Edited by C.E.W. Wolstenholme. London, 1971, Churchill Livingstone. 406 p. Price: $10.00.

Vitamin C and the Common Cold: By Linus Pauling. New York, 1971, Bantam Books. 12 p. Price: $1.25.

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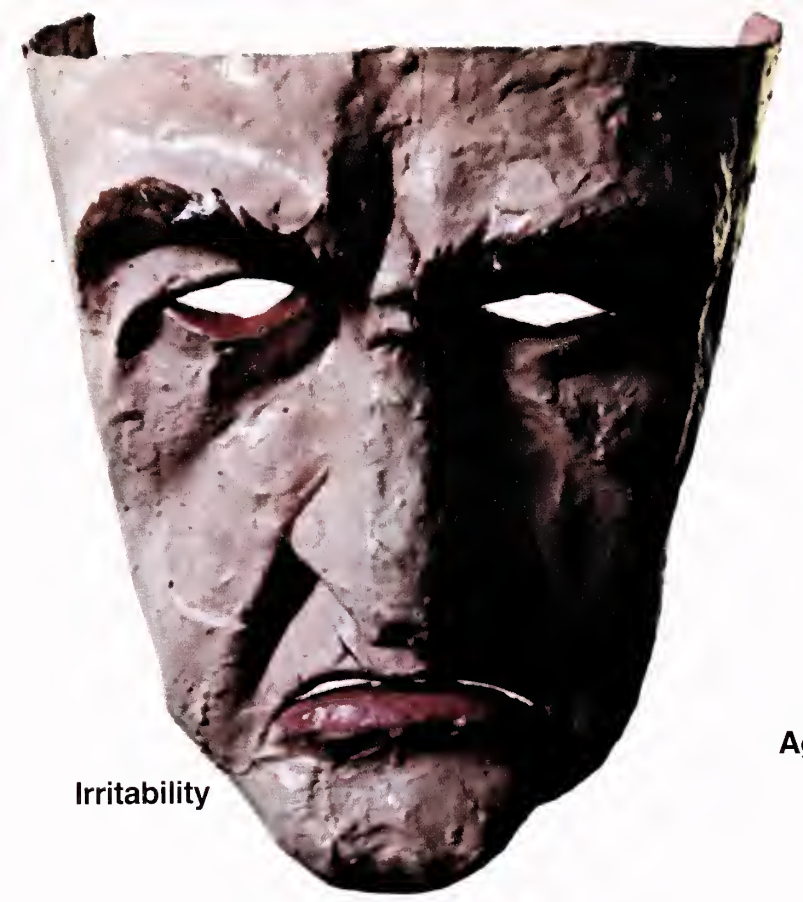
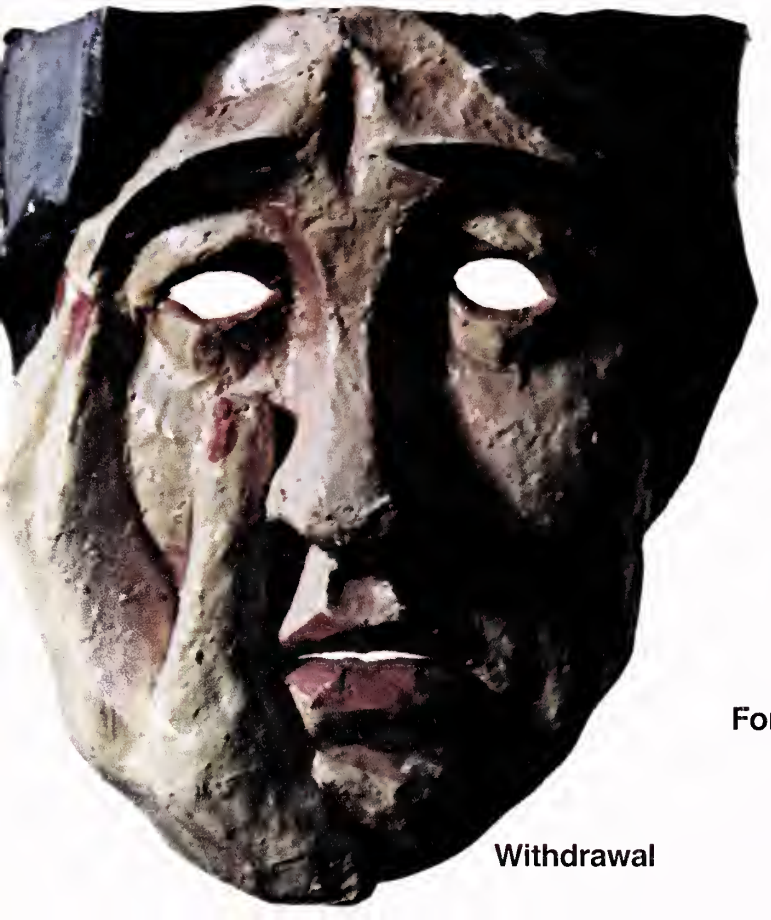


Irritability

Aggression

Cerebral vascular disease wears many deceptive faces.



Withdrawal

Forgetfulness

The personality changes of cerebral vascular disease often masquerade as behavioral disorders—particularly in the elderly.

Tranquilizer therapy—another mask

Treating the behavioral disturbances of cerebrovascular insufficiency with tranquilizers may quiet the patient and thereby mask the symptoms—but it does not approach the fundamental problem.

Cerespan (papaverine HCl)—a better answer than a tranquilizer in cerebrovascular spasm

Cerespan treats the basic problem.

Provides *direct* vasodilating action on responsive blood vessels to help increase cerebral blood flow and decrease cerebral vascular resistance.

So, when you are confronted with aggression, excitability, irritability, confusion, memory impairment, and certain other behavioral problems in older patients, cerebral vascular insufficiency due to vasospasm may be your diagnosis. A diagnosis that calls for Cerespan.

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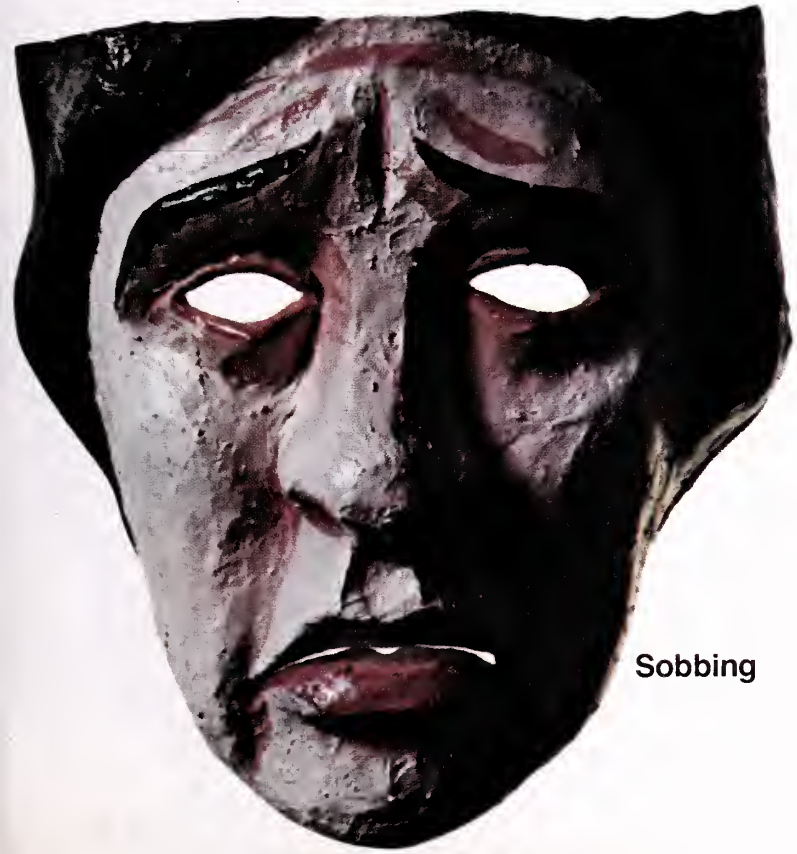

Sobbing

A better answer than a tranquilizer in cerebrovascular spasm

CERESPAN®

(papaverine HCl) q.12h.

150 mg. in micro-dialysis cells

BRIEF SUMMARY

Each Cerespan capsule contains papaverine HCl 150 mg. in micro-dialysis cells.

Indications and Dosage: For relief of cerebral and peripheral ischemia associated with arterial spasm, 1 capsule q. 12 h.

Precautions: Use with caution in glaucoma. Discontinue drug if hepatic hypersensitivity with gastrointestinal symptoms, jaundice, eosinophilia and altered liver function tests occur.

Adverse Reactions: Anorexia, nausea, abdominal distress, constipation or diarrhea, skin rash, malaise, drowsiness, vertigo, sweating and headache.

Supplied: Bottles of 100 and 1,000; drum of 5,000; single-dose blister pack, boxes of 500.

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FROM THE NEW USV

Call it what you will, it may be premalignant...

Before

3/29/67 Before therapy with 5%-FU cream. Patient P. T. shows a moderately severe solar keratotic involvement. Note residual scarring from the previous cryosurgical and electrosurgical procedures on forehead and ridge of nose adjacent to periauricular area.

After

6/12/67 Seven weeks after cessation of therapy. Reactions have subsided. Residual scarring is not seen except for that due to prior surgery. Inflammation has disappeared and face is clear of keratotic lesions.

ROCHE
Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

and Efudex® (fluorouracil) 5% cream can resolve it.

Call it actinic, solar or senile keratoses, many regard it as "precancerous."[1,2]

Topical fluorouracil, considered by some dermatologists to be a major advance in the treatment of multiple solar keratoses,[3,4] offers the physician a relatively inexpensive alternative to cryosurgery, electrodesiccation and cold knife surgery. Of the topical fluorouracils available, only Efudex offers 2% and 5% solution and 5% cream formulations—formulations that have proved effective in the treatment of these mutliple lesions.

Usual duration of therapy, 2 to 4 weeks.

Studies showed that with the 2% and 5% Efudex preparations, the usual duration of therapy was only 2 to 4 weeks.[5] Other studies with topical fluorouracil revealed that when concentrations of less than 2% were used, significant numbers of lesions recurred.[6]

Treats the lesions you can't see, too.

Numerous lesions, not apparent prior to 2% and 5% Efudex therapy, manifested themselves by definite reactions, while intervening skin remained relatively unaffected.[5] The early eradication of these subclinical lesions (which may otherwise have undergone further progression) probably accounts for the reduced incidence of future solar keratoses in patients treated with topical fluorouracil—especially with 5% concentrations.[6]

How to identify solar keratoses.

Typically, the lesion—a flat or slightly elevated brown to red-brown papule—is dry, rough, adherent and sharply defined. Multiple lesions are the rule.

Predictable therapeutic response.

The response to a typical course of Efudex therapy is usually characteristic and predictable. After 3 or 4 days of treatment, erythema begins to appear in the area of keratoses. This is followed by a moderate to intense inflammatory response, scaling and occasionally moderate tenderness or pain. The height of this response generally occurs two weeks after the start of therapy and then begins to subside as treatment is stopped. Within two weeks of discontinuing medication, the inflammation is usually gone. Lesions that do not respond should be biopsied.

References: 1. Allen, A. C.: *The Skin, A Clinicopathological Treatise*, ed. 2, New York, Grune & Stratton, 1967, p. 842. 2. Dillaha, C. J.; Jansen, G. T, and Honeycutt, W. M.: "Treatment of Actinic Keratoses with Topical Fluorouracil," in Waisman, M. (ed.): *Pharmaceutical Therapeutics in Dermatology*, Springfield, Ill., Charles C Thomas, 1968, p. 92. 3. Belisario, J. C.: *Cutis*, *6*:293, 1970. 4. Sams, W. M.: *Arch. Derm.*, *97*:14, 1968. 5. Data on file, Hoffmann-La Roche Inc., Nutley, New Jersey. 6. Williams, A. C., and Klein, E.: *Cancer*, *25*:450, 1970.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Multiple actinic or solar keratoses.

Contraindications: Patients with known hypersensitivity to any of its components.

Warnings: If occlusive dressing used, may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.

Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.

Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with nonmetal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.

How Supplied: Solution, 10-ml drop dispensers—containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)aminomethane, hydroxypropyl cellulose, parabens (methyl and propyl) and disodium edetate.

Cream, 25-Gm tubes—containing 5% fluorouracil in a vanishing cream base consisting of white petrolatum, stearyl alcohol, propylene glycol, polysorbate 60 and parabens (methyl and propyl).

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(fluorouracil)
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ulcer patients take
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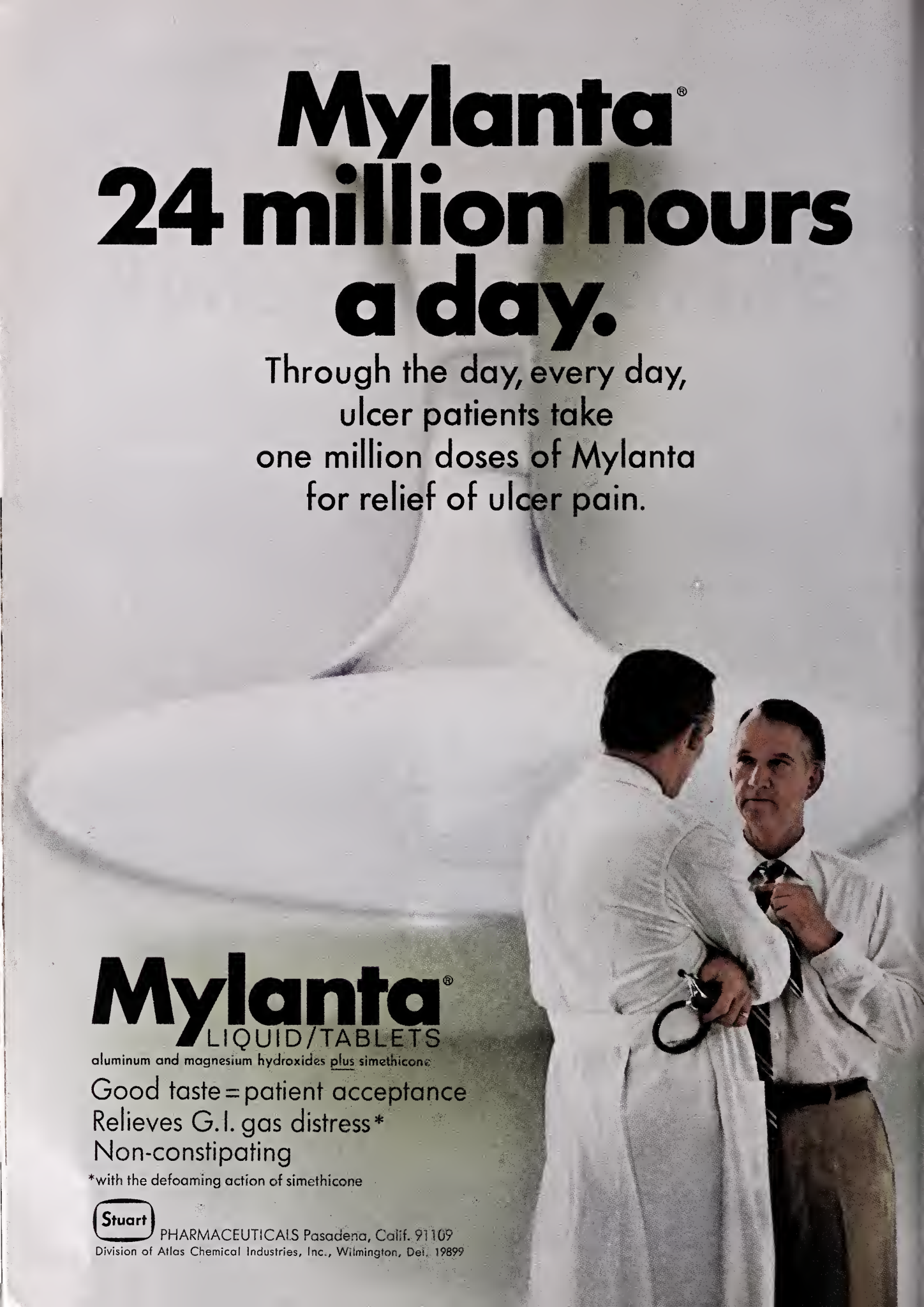
for relief of ulcer pain.



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Relieves G.I. gas distress*
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NATIONAL AFFAIRS

Summary of Actions of
The House of Delegates
American Medical Association
25th Clinical Convention
New Orleans, Louisiana
November 28-December 1, 1971

Foreword

"As is pointed out, this is not a complete report, but a comprehensive report is on file at the Colorado Medical Society office.

"This summary is introduced with the statement that 'Actions which were not only significant, but historical, were taken'. . . . I would feel impelled to add that they were less than earth-shaking. However, I do have hope that the 'One Day Hearings' which will precede the Annual and Clinical Meetings of 1972 will reflect 'The one prevailing mood of the House of Delegates of wanting to move forward at the swiftest possible pace'."

Gatewood C. Milligan, MD
Senior Delegate

Actions which were not only significant, but historical, were taken by the House of Delegates at the Clinical Convention. They included creation of a special section for medical students, and one for interns and residents; ordering open hearing at the two 1972 conventions to explore questions relating to AMA organizational structure and programs, questions raised by AMA President Wesley W. Hall last June in Atlantic City and again in New Orleans; approving a vote on the Board of Trustees for the AMA vice president; approving participation of non-members of the AMA in AMA scientific programs, and directing that the AMA lead in developing a national program for certification of the assistant to the primary care physician.

Medical Students

No less than five items of business—Report I of the Board of Trustees and four resolutions—concerned this subject, reflecting the intensity of interest. These items were studied by a reference committee and a substitute resolution was offered in lieu of all of them—referring the matter to the Board for study of mechanisms to include students in the organizational structure.

But the House rejected the move. It adopted instead an amended resolution on motion of the California delegation. This measure approved "creation of a special section for medical students and a section for interns and residents." It directed that the Council on Constitution and By-Laws "develop appropriate language to accomplish this purpose," working with representatives of the Student American Medical Association and representatives of the interns and residents. The long-heard appeal of students and younger physicians for a voting voice in the AMA was thus answered.

President's Address

AMA President Wesley W. Hall, saying, "our House of Medicine is sorely in need of some major repairs," repeated his call for a Constitutional Convention, or other appropriate procedure, for a basic review of organizational structure and programs. He first suggested such a convention upon his inauguration last June.

Dr. Hall said that since that time he had traveled throughout the nation and heard from physicians "hundreds of unsolicited views on medicine in general, on problems they are encountering in their practice and on our stewardship of the AMA.

"Frankly, I am troubled and disturbed by what I see and hear," Dr. Hall told the House, "and I am more convinced than ever that we need a basic review of our Association's organizational structure."

He did not envision "a study that will continue over a period of years and years and become bogged down in trying to anticipate problems and programs of the distant future. We all recognize the need for long-range planning, but my concern calls for more immediate action."

Dr. Hall said he was disturbed by a number of things, including losses in membership, association finances and a decrease in attendance at annual and clinical meetings.

He also said, "We simply have too many programs. Some have outlived their usefulness. Others are of considerable value in these times. Still others should be pruned."

He called for employment of the consulting firm of Cresap, McCormick and Paget, which did a study for the AMA in 1968, to do another survey on AMA operations.

The President also called for closer liaison with specialty societies; suggested the AMA should sponsor only national and international congresses on general subjects, rather than its traditional meetings, and said it may be time to consider reorganizing the association as a "for profit" corporation or service corporation.

Dr. Hall's address and Resolution 50 which also called for organizational review, were studied and discussed in reference committee. The committee also studied two reports dealing with the question of a Constitutional Convention, from the Councils on Constitution and By-Laws and Long Range

Planning and Development, both of which recommended against holding a Constitutional Convention.

The reference committee "reapprised itself of the 1968 management report" of Cresap, McCormick and Paget. Upon completion of Phase I of that study, "the Board of Trustees, of which Dr. Hall was a member, terminated the study and the action was aproved by the House of Delegates in December, 1969. Your reference committee concurs in this decision."

There is continuous review and evaluation of AMA structure and programs, the committee said.

"Changes in the Constitution and By-Laws at every meeting bear this out. Recent changes in membership provisions with respect to interns and residents, as well as current changes in the status of medical students and voting powers of the vice president are prime examples."

The committee said the Council on Long Range Planning and Development was an appropriate mechanism for reviewing structure and programs, and to serve as a focal point for planning activities.

The panel said it believed the Board of Trustees was "vigorously pursuing" the problem with membership and that the President's concern about AMA involvement in scientific matters "will be alleviated by recent changes in the Constitution and By-Laws establishing Section Councils which will become operative in 1972."

Many of the problems faced by medicine come from social unrest and are common to all society, the committee said. It said Dr. Hall, "in his tireless efforts in appearances throughout the country, has seen this unrest and is to be commended for bringing this to the attention of the House of Delegates."

The House accepted the committee's recommendation to refer Dr. Hall's remarks and Resolution 50 to the Council on Long Range Planning and Development. But it also called for specific procedures to be instituted by the Council.

This came in an amendment from the Wisconsin delegation, whose spokesman said it came to the convention "with a mandate to seek a constitutional convention or some type of meeting to effect organizational changes." The amendment instructed the Council to hold open hearings for the membership in San Francisco in June, 1972, and in Cincinnati in November, 1972, and provide the House with progress reports and a summary report on its recommendations and findings in June, 1973, in New York.

Vice President

There was overwhelming support for Resolution 55, to give the vice president of the AMA voting privileges on the Board of Trustees, and the measure was quickly adopted by the House. Presently, the vice president attends Board meetings, with the right of discussion but no vote. The action would increase the size of the Board from 15 to 16 members. Although the House vote had the effect of amending the By-Laws, a Constitutional change is necessary, and the matter was referred to the Council on Constitution and By-Laws. Even as discussion continued before the House, the Council came up with the necessary proposed amendments, clearing the way for final action in the annual meeting in June, 1972.

Non-Member Participation

The House amended the By-Laws to permit those physicians who are not members of the AMA to participate in AMA scientific programs as "invited guests." The recommendation came from the Board of Trustees, which said the programs should be available to all members of the profession. The Board report said "non-member physicians, eminent persons from foreign countries, and residents of the United States who are not engaged in the practice of medicine" may be invited to participate.

Dues for Interns and Residents

The House established annual dues of $20 for interns and residents as members of the AMA. The amount was calculated "solely to cover some of the costs of the benefits of membership," such as receiving AMA publications. Interns and residents currently may join the AMA in two ways: Through active membership in a state association or, where there are no provisions for such membership, by direct application to the AMA. In either case, they must pay the $20 AMA dues.

Physicians' Assistants

Several major actions were taken in regard to the rapidly developing field of physicians' assistants.

The House directed that the AMA, through its Council on Health Manpower, "assume a leadership role in developing and sponsoring a national program for certification of the assistant to the primary care physician, who functions at the highest level of responsibility described by the National Academy of Sciences as a 'Type A' assistant."

Delegates also adopted a report of the Council on Medical Education, outlining essential requirements for AMA approval of educational programs for such assistants. The essentials were developed in collaboration with the American Academy of Family Physicians, the American Academy of Pediatrics, the American College of Physicians and the American Society of Internal Medicine.

Essentials of an approved educational program for urologic physicians' assistants, outlined in another Council report, went back to the Council for further study.

The House directed the Board of Trustees to develop guidelines on compensation of physicians for the services of their assistants, and to report back to the House next June.

Hospital Costs-Education Factors

The rising costs of hospital care, and those cost factors attributable to hospital-based education programs, also drew House attention and action. Delegates adopted a resolution which reiterated AMA concern about increasing costs and pledged AMA efforts to achieve cost control, and added:

"Resolved, that the Board of Trustees be urged to assign to appropriate councils and committees the responsibility to conduct a detailed study of the costs of hospital services to identify (1) the multiple factors involved; (2) the elements that have the greatest impact on the rise in hospital costs; (3) the various cost factors attributable to hospital-based medical and allied health education programs; (4) the alternative mechanisms to finance the costs of such educational programs including the possibility of reducing or eliminating charges to patients that are attributable to such programs; (5) the degree of impact, if any, that federally funded health programs have on these hospital costs."

The resolution called for the study to be conducted in consultation with the American Hospital Association, private and governmental payment agencies, and representatives of the public. Periodic progress reports, to be submitted at each session of the House of Delegates until completion of the study, also were requested.

Miscellaneous

Immediate action to improve the quality of emergency medical services in the United States was urged in a Board of Trustees report adopted by the House. The report said:

"Those medical societies that have not already done so are urged to establish councils on emergency medical services or to assign that subject area to an appropriate existing council, whose responsibility should include developing action-programs in emergency medical services to meet their area's needs and maintaining liaison with groups at all levels of organized medicine concerned with emergency medical services."

Small communities without necessary resources to develop their own systems "should consider linking together with surrounding communities to form a regional system." Skilled personnel and high quality equipment and facilities should be provided, the report said, and the medical profession should see to it that quality of service is periodically evaluated. The report also recommended a single agency at the federal level with responsibility for all governmental efforts to improve emergency medical services.

A revised statement on the scope, objectives and functions of occupational health programs also was adopted by the House. The statement, among other things, said "some employes on occasion may find it impossible to locate or to obtain the services of a personal physician or health service. In such circumstances, limited to where treatment is otherwise unavailable, the occupational physician may undertake additional and continuing treatment of an employe's nonoccupational condition if requested to do so by the employe or his family."

The statement added that if such services become ongoing within the occupational health program, approval of the employer should be obtained. "In order to assure high quality medical care, consideration and approval by the local medical society in developing such projects, including the methods of payment for services, is urged."

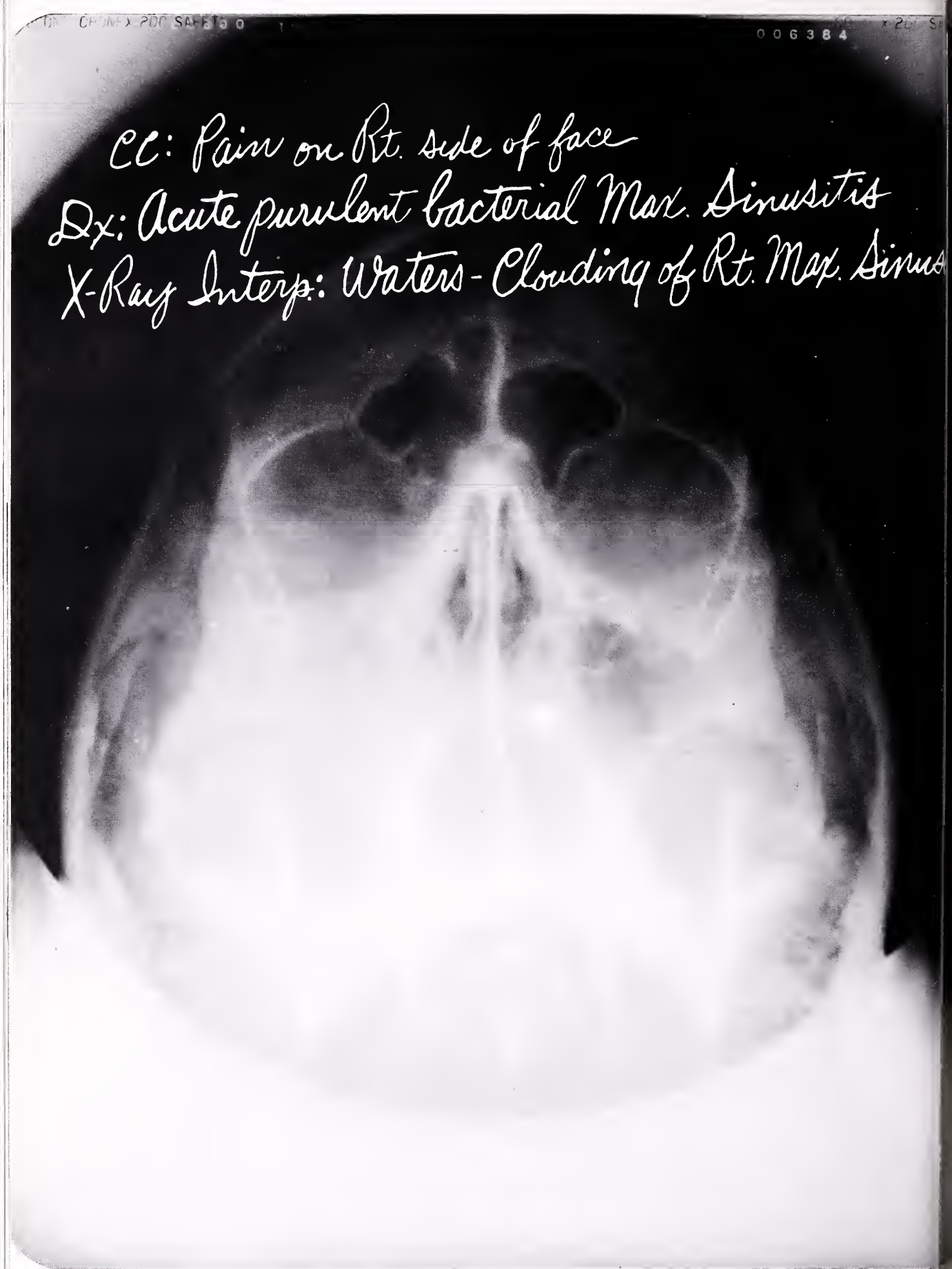
The House adopted a study on Community Health Delivery Programs and urged it be given wide distribution. The study, by a task force of the Committee on Community Health Care, described funding, scope of operations and staffing of 30 programs around the nation.

Physicians should be active, the report recommended, in a number of areas including: participating in planning and operation of community health programs; using all means at their disposal to ensure that all people are afforded equal access to adequate medical and health care; supporting campaigns against factors harmful to health such as lead poisoning, drug abuse and poor housing; and supporting health education programs in schools, homes and the mass media. The federal government should be urged to consolidate all federal health programs under one department and to provide long-range approval and multiple-year funding—rather than annual funding—to help retain top staff, the report said.

Awards

Milton Helpern, M.D., the noted chief medical examiner for New York City, was chosen by the House to receive the AMA Distinguished Service Award for 1972. It will be presented at the annual convention in June, 1972, in San Francisco. Dr. Helpern earned his M.D. from Cornell University Medical College in 1926. Following his internship and a pathology residence at Bellevue Hospital in New York, he became an assistant in the office of New York City's chief medical examiner. He became chief of the department in 1954. Dr. Helpern, author of a book and numerous articles, is professor of pathology and chairman of the department of forensic medicine at New York University School of Medicine.

Mac F. Cahal, J.D., executive director of the American Academy of Family Practice for nearly a quarter of a century, received the Layman's Citation for Distinguished Service. Mr. Cahal, an attorney, retired last month from the Academy, now known as the American Academy of Family Physicians. But he continues to serve as its general counsel. The nomination described him as having "implemented ideas which have contributed greatly to American medicine on every level and in every area open to him."



X-ray provided by Manhattan Eye, Ear and Throat Hospital

There are many frustrations in treating acute sinusitis. Cleocin manages most of the bacterial ones.

Inadequate drainage, chronic rhinitis, allergy, exposure to temperature extremes, and other factors can delay recovery from acute sinusitis.

It's helpful to have an antibiotic like Cleocin HCl (clindamycin HCl hydrate, Upjohn) that can take care of most of the gram-positive bacterial problems related to the disease.

As one study* of 52 outpatients showed, acute maxillary sinusitis was associated with staphylococci in 50% of the group, with pneumococci in 25%, and with streptococci and various other organisms (chiefly gram-negative) in the remainder. Significantly, one-half of these staphylococcal infections were resistant to both penicillin and tetracycline (all were sensitive to erythromycin and chloramphenicol). Although not a part of this study, many other clinical and bacteriologic reports[1] have shown that such gram-positive bacteria, which most often are associated with acute sinusitis, are usually susceptible to Cleocin.

Can be taken before, with, or after meals

The total absorption of Cleocin is virtually unaffected by the presence of food in the GI tract.[1] Cleocin thus can be administered as prescribed without interfering with the patient's mealtimes.

Useful in patients hypersensitive to penicillin

Cleocin's chemical structure bears no relationship to penicillin or the cephalosporins. Cleocin therefore may be especially useful in patients with acute sinusitis who report a history of hypersensitivity to these antibiotics. Although hypersensitivity reactions have been uncommon with Cleocin, it should be used cautiously in atopic individuals. Cleocin is not recommended in the lincomycin-sensitive patient.

Please see following page for further prescribing information.

Cleocin® HCl 150 mg capsules

clindamycin HCl hydrate, Upjohn

eynolds, R. C., et al.: Bull. Johns Hopkins Hosp. 114:269, 1964
Data on file, Medical Research Department, The Upjohn Company

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Side effects: In studies of 1,416 patients involving 92 clinical investigators, side effects were reported in 8.2%.[1] Diarrhea or loose stools were noted in 3% of these cases (one patient with bloody stools). In a few instances, diarrhea lasted several days. A slightly higher incidence of diarrhea or loose stools has been reported by some investigators in subsequent studies.

Toxicity: No irreversible hematologic, renal, dermatologic, or neurologic abnormalities have been reported.[1] Transient leukopenia and eosinophilia have been observed. Elevations of alkaline phosphatase and serum transaminases were observed in a few instances. As with other antibiotics, periodic liver function tests and blood counts should be performed during prolonged therapy.

In acute sinusitis and other upper respiratory infections due to susceptible staphylococci, streptococci, and pneumococci.

Cleocin® HCl

clindamycin HCl hydrate, Upjohn

Each preporation contains:	Clindomycin HCl hydrote equivolent to clindomycin base
150 mg Copsules	150 mg
75 mg Capsules	75 mg

Cleocin (clindomycin, Upjohn) is o new semisynthetic ontibiotic produced from the porent compound lincomycin and provides more *in vitro* potency, better orol obsarption ond fewer gostrointestinal side effects thon the porent compound.

Cleocin HCl (clindomycin HCl hydrote) is indicoted in infections af the upper ond lower respirotory troct, skin ond soft tissue, ond, adjunctively, dentol infections coused by grom-positive organisms which are susceptible to its oction, porticulorly streptacocci, pneumococci ond stophylococci. As with oll ontibiotics, *in vitro* susceptibility studies should be parformed.

CONTRAINDICATIONS: Potients previously found to be hypersensitive to this compound or to lincomycin.

WARNINGS: Safety for use in pregnoncy not estoblished. Not indicoted in the newborn (infonts below 30 doys of oge).

PRECAUTIONS: Prescribe with caution in otopic individuals. Perfarm periodic liver function tests and blood caunts during prolonged therapy. The serum half-life in potients with markedly reduced renol function is opproximately twice that in normal patients; hemodialysis ond peritoneol dialysis do not effectively remave Cleacin fram the blaad. Therefare, with severe renol insufficiency, determine serum levels af clindomycin periodically ond decreose the dose appropriately. Should overgrowth of nonsusceptible organisms—particularly yeasts—occur, toke appropriote clinicolly indicoted measures.

ADVERSE REACTIONS: Generolly well toleroted in clinicol efficocy studies. Side effects reported in 8.2% of 1,416 potients. Of the totol, 6.9% reported gostrointestinal side effects and 1.3% reported other side effects. Diorrhea ar loose stools were reported in 3%. *Gastraintestinal:* Symptams included abdominol poin, nousea, vomiting ond diarrheo or loose stools. In o few instances, diarrheo losted for severol doys; one cose of bloody stools wos reported. *Hemotopoietic:* Tronsient neutropenia (leukopenio) ond eosinophilia have been reported; relotionship to theropy is unknown. No irreversible hemotologic toxicity has been reported. *Skin ond Mucous Membranes:* Skin rosh ond urticorio hove been reported infrequently. *Hypersensitivity Reoctions:* A few coses of hypersensitivity reaction hove been reported. If hypersensitivity occurs, discontinue drug ond have avoilable the usuol ogents (epinephrine, corticosteroids, ontihistomines) for emergency treotment. *Liver:* Although no direct relationship of Cleocin HCl (clindomycin HCl hydrate) to liver dysfunction has been nated and significonce af such change is unknown, transient abnormalities in liver function tests (elevotions af alkaline phasphatase and serum transaminases) have been observed in a few instances. Alsa, abnormal liver function test volues ot the beginning of therapy have returned to normal during theropy.

DOSAGE AND ADMINISTRATION: *Adults:* Mild to moderotely severe infections—150 ta 300 mg every 6 haurs. Severe infections—300 to 450 mg every 6 haurs.

Children: Mild ta moderately severe infections—8 to 16 mg/kg/day (4 to 8 mg/lb/day) divided inta three or four equol doses. Severe infections—16 to 20 mg/kg/day (8 ta 10 mg/lb/doy) divided into three ar four equal dases.

Nate: With β-hemolytic streptacoccal infections, treotment should continue far ot least 10 days ta diminish the likelihood of subsequent rheumotic fever or glamerulonephritis.

SUPPLIED: *150 mg* Capsules—Bottles of 16's and 100's. *75 mg* Copsules—Bottles of 16's ond 100's. *Sensitivity Disks*—2 µg. *Sensitivity Powder*—Vials.

Far additional product informotion, see your Upjohn representotive or consult package insert. MED B-4-S (LNU-3) JA71-1565

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Although he's promised to take it easy back on the job, you know he's going back to the same stressful circumstances that may have contributed to his hospitalization. Your prescription for Valium can calm him. Lessened anxiety and tension can help in decelerating his former pace. During the period of readjustment Valium helps quiet undue anxiety.

For moderate states of psychic tension, 5-mg or 2-mg Valium tablets *t.i.d.* or *q.i.d.* can usually provide reliable relief. For severe tension/anxiety states, the 10-mg tablets often produce desired results.

The most commonly reported side effects are drowsiness, ataxia, and fatigue. Until individual response is determined, caution patient against driving or operating dangerous machinery.

Valium® (diazepam)

For the tense cardiac patient who must be kept calm

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

Dosage: Individualize for maximum beneficial effect. *Adults:* Tension, anxiety and psychoneurotic states, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed; adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d.; adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. *Geriatric or debilitated patients:* 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) *Children:* 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

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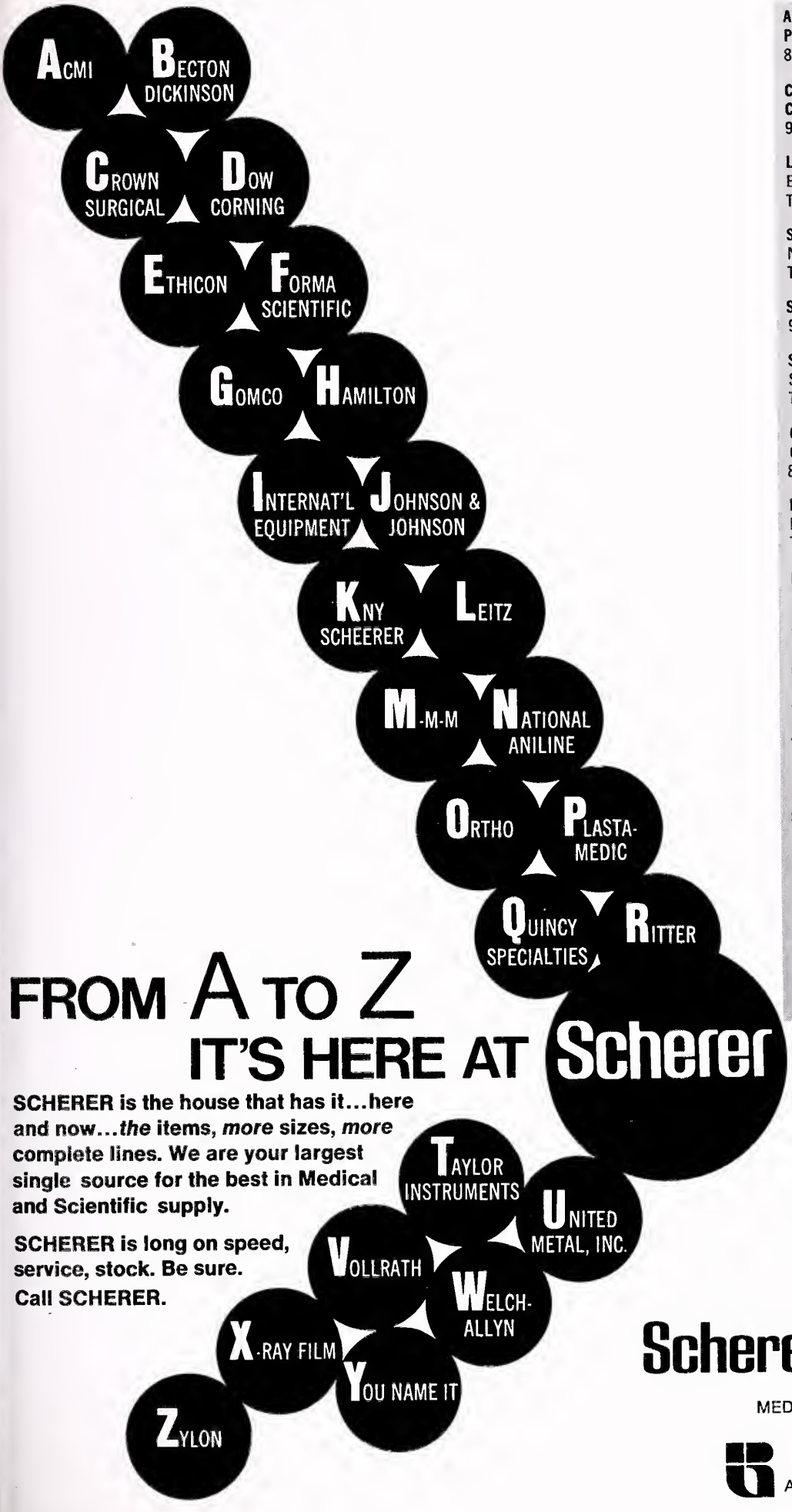

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ALL THYROID-FUNCTION TESTS ARE USEFUL IN MONITORING SYNTHROID THERAPY

No calculations are needed, test interpretation is simple.

Any of the commonly used T_4 thyroid function tests (P.B.I., T_4 By Column, Murphy-Pattee, Free Thyroxine) are useful in monitoring patients on T_4 because they *all* measure T_4. Patients on SYNTHROID are thereby easy to monitor because their results will fall within predictable, elevated test ranges. Of course, clinical assessment is the best criterion of the thyroid status of the drug-treated patient.

TEST	HYPOTHYROID	SYNTHROID THERAPEUTIC NORMAL
P.B.I.	Less than 4 mcg %	6-10 mcg %
T_4 By Column	Less than 3 mcg %	7-9 mcg %
T_3 (Resin)	Less than 25%	27-35%
T_3 (Red Cell)	Less than 11%	11.5-18%
Free Thyroxine	Less than 0.7 nanograms %	0.7-2.5 nanograms %
Murphy-Pattee	Less than 2.9 mcg %	4-11 mcg %

TWO GOOD REASONS WHY THE ROAD TO NORMALIZED THYROID STATUS IS SO SMOOTH FOR THE SYNTHROID PATIENT.

(1) The onset of action of T_4 is gradual. It has a long in vivo "half-life" of over six days. (Occasional missed doses or accidental double-doses are of less concern because of this factor)[1]; (2) since SYNTHROID contains only T_4, the potential for metabolic surges traceable to more potent iodides (T_3) is eliminated.

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Side effects, when they do occur, are related to excessive dosage. Caution should be exercised in administering the drug to patients with cardiovascular disease. Read the accompanying prescribing information for additional data or write Flint Laboratories.

Choose the Smooth Road ...to thyroid replacement therapy

ATIENTS CAN BE UCCESSFULLY AINTAINED ON A RUG CONTAINING HYROXINE ALONE.

yroxine (T_4) is, as you know, e major circulating hormone oduced by the thyroid gland. is also produced, in smaller ounts, and is active at the llular level. For years it has been working hypothesis among docrinologists that T_4 is nverted by the body to T_3. In 70 this process, called eiodination," was demonstrated Braverman, Ingbar, and Sterling[2]. does convert to T_3, though the ecise quantities are still being idied.

The conversion has been nically demonstrated during the ministration of T_4 to athyrotic tients. Their thyroid status is rmalized on SYNTHROID alone, t the presence of T_3 in these tients has been clearly shown.

WHY DOES SYNTHROID COST LESS THAN SYNTHETIC DRUGS CONTAINING T_3?

Very simple. T_3 costs more to make synthetically than does T_4. So it is economically necessary for a synthetic thyroid medication containing T_3 to cost more than one containing T_4 alone. Synthetic combinations cost patients nearly 50% more than SYNTHROID[3] because the T_3 costs more to start with; also there is the additional expense of formulating a tablet containing two active ingredients.

1. Latiolais, C. J., and Berry, C. C.: Misuse of Prescription Medications by Outpatients, *Drug Intelligence & Clin. Pharm.* 3:270-7, 1969.
2. Braverman, L. E., Ingbar, S. H., and Sterling, K.: Conversion of Thyroxine (T4) to Triiodothyronine (T3) in Athyreotic Human Subjects, *J. Clin. Invest.* 49:855-64, 1970.
3. American Druggist BLUEBOOK, March, 1971.

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Indications: SYNTHROID (sodium levothyroxine) is specific replacement therapy for diminished or absent thyroid function resulting from primary or secondary atrophy of the gland, congenital defect, surgery, excessive radiation, or antithyroid drugs. Indications for SYNTHROID (sodium levothyroxine) **Tablets** include myxedema, hypothyroidism without myxedema, hypothyroidism in pregnancy, pediatric and geriatric hypothyroidism, hypopituitary hypothyroidism, simple (nontoxic) goiter, and reproductive disorders associated with hypothyroidism. SYNTHROID (sodium levothyroxine) **for Injection** is indicated for intravenous use in myxedematous coma and other thyroid dysfunctions where rapid replacement of the hormone is required. The injection is also indicated for intramuscular use in cases where the oral route is suspect or contraindicated due to existing conditions or to absorption defects, and when a rapid onset of effect is not desired.

Precautions: As with other thyroid preparations, an overdosage may cause diarrhea or cramps, nervousness, tremors, tachycardia, vomiting and continued weight loss. These effects may begin after four or five days or may not become apparent for one to three weeks. Patients receiving the drug should be observed closely for signs of thyrotoxicosis. If indications of overdosage appear, discontinue medication for 2-6 days, then resume at a lower dosage level. In patients with diabetes mellitus, careful observations should be made for changes in insulin or other antidiabetic drug dosage requirements. If hypothyroidism is accompanied by adrenal insufficiency, as Addison's Disease (chronic subcortical insufficiency), Simmonds's Disease (panhypopituitarism) or Cushing's syndrome (hyperadrenalism), these dysfunctions must be corrected prior to and during SYNTHROID (sodium levothyroxine) administration. The drug should be administered with caution to patients with cardiovascular disease; development of chest pains or other aggravations of cardiovascular disease requires a reduction in dosage.

Contraindications: Thyrotoxicosis, acute myocardial infarction. **Side effects:** The effects of SYNTHROID (sodium levothyroxine) therapy are slow in being manifested. Side effects, when they do occur, are secondary to increased rates of body metabolism; sweating, heart palpitations with or without pain, leg cramps, and weight loss. Diarrhea, vomiting, and nervousness have also been observed. Myxedematous patients with heart disease have died from abrupt increases in dosage of thyroid drugs. Careful observation of the patient during the beginning of any thyroid therapy will alert the physician to any untoward effects.

In most cases with side effects, a reduction of dosage followed by a more gradual adjustment upward will result in a more accurate indication of the patient's dosage requirements without the appearance of side effects.

Dosage and Administration: The activity of a 0.1 mg. SYNTHROID (sodium levothyroxine) TABLET is equivalent to approximately one grain thyroid, U.S.P. Administer SYNTHROID tablets as a single daily dose, preferably after breakfast. In hypothyroidism without myxedema, the usual initial adult dose is 0.1 mg. daily, and may be increased by 0.1 mg. every 30 days until proper metabolic balance is attained. Clinical evaluation should be made monthly and PBI measurements about every 90 days. Final maintenance dosage will usually range from 0.2-0.4 mg. daily. In adult myxedema, starting dose should be 0.025 mg. daily. The dose may be increased to 0.05 mg. after two weeks and to 0.1 mg. at the end of a second two weeks. The daily dose may be further increased at two-month intervals by 0.1 mg. until the optimum maintenance dose is reached (0.1-1.0 mg. daily).

Supplied: Tablets: 0.025 mg., 0.05 mg., 0.1 mg., 0.15 mg., 0.2 mg., 0.3 mg., 0.5 mg., scored and color-coded, in bottles of 100, 500, and 1000. Injection: 500 mcg. lyophilized active ingredient and 10 mg. of Mannitol, N.F., in 10 ml. single-dose vial, with 5 ml. vial of Sodium Chloride Injection, U.S.P., as a diluent. SYNTHROID (sodium levothyroxine) **for Injection** may be administered intravenously utilizing 200-400 mcg. of a solution containing 100 mcg. per ml. If significant improvement is not shown the following day, a repeat injection of 100-200 mcg. may be given.

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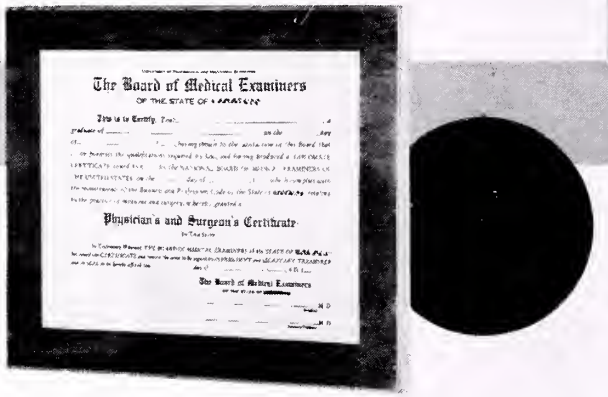

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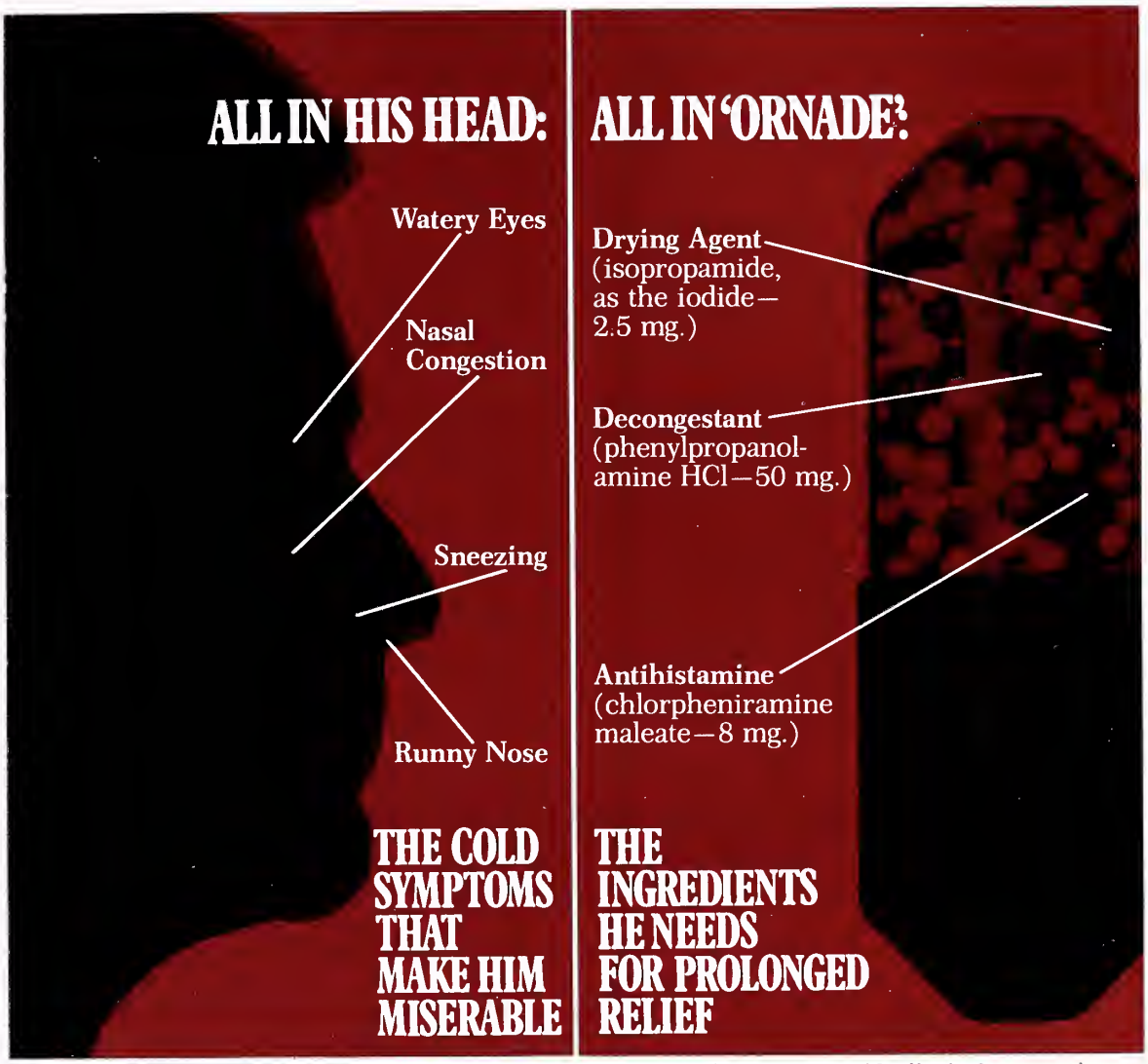

Before prescribing, see complete prescribing information in SK&F literature or *PDR*.

Indications: Upper respiratory congestion and hypersecretion associated with: the common cold; acute and chronic sinusitis; vasomotor rhinitis; allergic rhinitis (hay fever, "rose fever," etc.).

Contraindications: Hypersensitivity to any component; concurrent MAO inhibitor therapy; severe hypertension; bronchial asthma; coronary artery disease; stenosing peptic ulcer; pyloroduodenal or bladder neck obstruction. Children under 6.

Warnings: Advise vehicle or machine operators of possible drowsiness. Warn patients of possible additive effects with alcohol and other CNS depressants.

Usage in Pregnancy: In pregnancy, nursing mothers and women who might bear children, weigh potential benefits against hazards. Inhibition of lactation may occur.

Effect on PBI Determination and I^{131} Uptake. Isopropamide iodide may alter PBI test results and will suppress I^{131} uptake. Substitute thyroid tests unaffected by exogenous iodides.

Precautions: Use cautiously in persons with cardiovascular disease, glaucoma, prostatic hypertrophy, hyperthyroidism.

Adverse Reactions: Drowsiness, excessive dryness of nose, throat or mouth; nervousness; or insomnia. Also, nausea, vomiting, epigastric distress, diarrhea, rash, dizziness, weakness, chest tightness, angina pain, abdominal pain, irritability, palpitation, headache, incoordination, tremor, dysuria, difficulty in urination, thrombocytopenia, leukopenia, convulsions, hypertension, hypotension, anorexia, constipation, visual disturbances, iodine toxicity (acne, parotitis).

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COLORADO MEDICAL SOCIETY
1972 WINTER CLINICS

March 4, 1972
St. Anthony's Hospital
The Nurses Auditorium

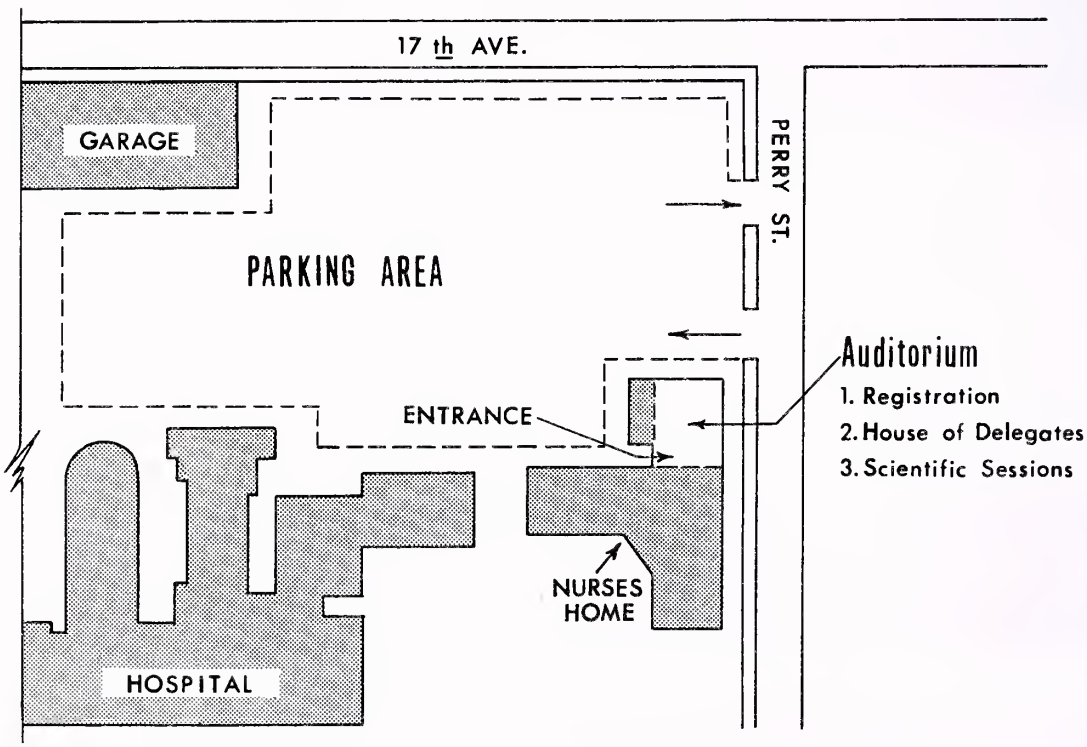
8:00 A.M. **"WHAT ARE PROSTAGLANDINS?"**
Dr. Charles Chidsey, Associate Professor of Medicine and Head, Division of Clinical Pharmacology, University of Colorado School of Medicine

8:30 A.M. **"THE CLINICAL IMPLICATIONS OF CYCLIC AMP AND THE SECOND MESSENGER HYPOTHESIS"**
Dr. John P. Perkins, Assistant Professor of Pharmacology, University of Colorado School of Medicine

9:00 A.M. **"PATIENTS WITH PRE- AND POST-OPERATIVE COMPLICATIONS OF PEPTIC DISEASE"**
Moderator: Dr. Donald Butterfield; Panel: Drs. Peter Baker, John Smiley, and William Davis.

10:00 A.M. **"SILICOSIS AS A PROBLEM FOR COLORADO DOCTORS AND THEIR PATIENTS"**
Moderator: Dr. Boyd Bigelow; Panel: To be selected.

11:00 A.M. **"EMERGENCY ROOM PROBLEMS AND SOME POSSIBLE SOLUTIONS"**
Moderator: Dr. Robert Rutherford; Panel: Drs. Henry Cleveland, Dan Dracon, Dean Girard, and Fred Platt.



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MEETINGS

Pediatric Pulmonary Center of New Mexico Regional Medical Program

THE CARE OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN CHILDREN AND YOUNG ADULTS
Albuquerque, New Mexico
February 21-25, 1972

Credit: AAGP approved.

For further information, write: Roy F. Goddard, MD, Course Director, Pediatric Pulmonary Center of New Mexico Regional Medical Program, 5300 Gibson Boulevard, SE, Albuquerque, New Mexico 87108.

Wyoming State Medical Society

SEVENTH ANNUAL WINTER SEMINAR
Elks Club, Lander, Wyoming
February 17-18, 1972

Credit (AAFP): 19 hours.

The seminar's primary purpose is to provide a forum for Wyoming physicians to present medical papers to their colleagues. In addition to several Wyoming doctors who will give papers, two guest speakers will also lecture. Dr. Timothy Fleming, an instructor in medicine and senior fellow in cardiology at the University of Washington School of Medicine, will talk about "Newer Methods of Evaluation and Treatment of Coronary Artery Disease" and "Indications for the Use of Cardiac Pacemakers". Dr. Henry M. Lemon, who is professor of medicine and head of the University of Nebraska College of Medicine's section of oncology, has chosen the topic, "Reduced Lymphoma Incidence in Wyoming Compared to Nebraska".

American Gastroenterological Association

THE PANCREAS
Fairmont Hotel, Dallas, Texas
May 21-22, 1972

Fee: $100 for guests; $80 for AGA members; $25 for physicians in training.

For further information, write: Micki Thomas, AGA Postgraduate Course, Charles B. Slack, Inc., 6900 Grove Road, Thorofare, New Jersey 08086.

Mid-Central States Orthopaedic Society

19TH ANNUAL MEETING
The Sheraton Little Rock, Little Rock, Arkansas
March 23-25, 1972

For further information, write: Mid-Central States Orthopaedic Society, 14 Douglas Parkway, Wichita, Kansas 67206.

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American Gastroenterological Association

73RD ANNUAL MEETING

Dallas, Texas

May 21-27, 1972

For further information, write: Miss Mineola Rider, AGA Convention Housing Service, Dallas Convention Bureau, 1507 Pacific Avenue, Dallas, Texas 75201.

UCLA Extension, Continuing Education in Health Sciences

A MULTIDISCIPLINE SYMPOSIUM WORKSHOP FOR PHYSICIANS ON MANAGEMENT OF TRAUMA

El Mirador Hotel, Palm Springs, California

March 22-25, 1972

UCLA School of Medicine

NINTH ANNUAL UCLA SEMINAR ON CONTROVERSIAL AREAS IN SURGERY

El Mirador Hotel, Palm Springs, California

March 25-29, 1972

For further information, write: Department of Continuing Education in Health Sciences, University Extension, UCLA, Los Angeles, California 90024.

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American College of Physicians

SCIENTIFIC-EDUCATIONAL MEETING

Palo Alto, California

February 25-26, 1972

The meeting is planned for specialists in internal medicine and related fields in northern California and Nevada.

For further information, write: John R. Gamble, MD, 655 Sutter Street, San Francisco, California 94102.

Industrial Medical Association and the American Association of Industrial Nurses

1972 AMERICAN INDUSTRIAL HEALTH CONFERENCE

Philadelphia Civic Center

Philadelphia, Pennsylvania

April 17-20, 1972

For further information, write: American Industrial Health Conference, 150 North Wacker Drive, Chicago, Illinois 60606.

American Cancer Society

SEVENTH NATIONAL CANCER CONFERENCE

Biltmore Hotel, Los Angeles, California

September 27-29, 1972

The Conference is open to all members of the medical and related professions, research investigators, and medical and dental students. There is no registration fee, but preregistration is requested.

For further information, write: Sidney L. Arje, MD, Coordinator, Seventh National Cancer Conference, c/o American Cancer Society, 219 East 42nd Street, New York, New York 10017.

Chicago Committee on Trauma of the American College of Surgeons

POSTGRADUATE COURSE ON FRACTURES AND OTHER TRAUMA

Sheraton-Chicago Hotel, Chicago, Illinois

May 10-13, 1972

Credit (AAFP): 28 hours.

Fee: $125; $30 for interns, residents, and allied health personnel.

For further information, write: American College of Surgeons, 55 East Erie Street, Chicago, Illinois 60611.

University of Oklahoma

POSTGRADUATE COURSE ON MEDICAL THERAPEUTICS

University of Oklahoma Medical Center

Oklahoma City, Oklahoma

March 31-April 1, 1972

A general review of the use and abuse of several major drug categories as well as important recent advances in medical therapy. For more information, contact: Office of Continuing Medical Education for Physicians, University of Oklahoma Medical Center, 800 N.E. 13th Street, Oklahoma City, Oklahoma 73104.

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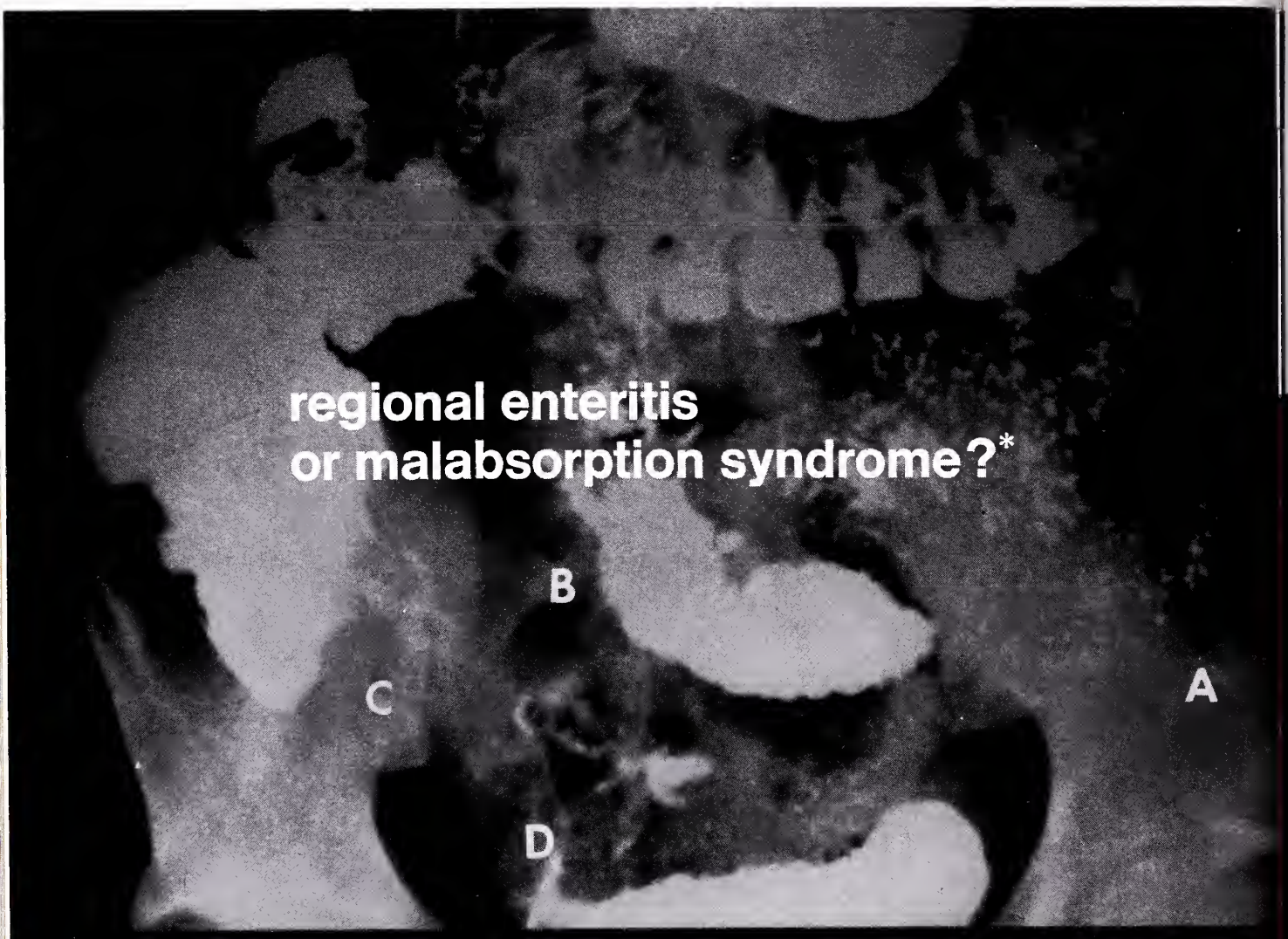
You may now specify up to five refills within six months when you prescribe Empirin Compound with Codeine (unless restricted by state law).

It is significant in this era of increased regulation, that Empirin Compound with Codeine has been placed in a less restrictive category. You may now wish to consider Empirin with Codeine even more frequently for its predictable analgesia in acute or protracted pain of moderate to severe intensity.

Empirin Compound with Codeine No. 3 contains codeine phosphate* (32.4 mg.) gr. ½. No. 4 contains codeine phosphate* (64.8 mg.) gr. 1. *(Warning—may be habit-forming.) Each tablet also contains: aspirin gr. 3½, phenacetin gr. 2½, caffeine gr. ½.



In G.I. disorders when nutritional supplementation is indicated

Berocca® tablets is therapy

With balanced, high potency
B-complex and C vitamins.
No odor.
Virtually no aftertaste.
Lowest priced Rx formula.

Please see Complete Prescribing Information, a summary of which follows:

Each Berocca Tablet contains:

Thiamine mononitrate	15 mg
Riboflavin	15 mg
Pyridoxine HCl	5 mg
Niacinamide	100 mg
Calcium pantothenate	20 mg
Cyanocobalamin	5 mcg
Folic acid	0.5 mg
Ascorbic acid	500 mg

Indications: Nutritional supplementation in conditions in which water-soluble vitamins are required prophylactically or therapeutically.
Warning: Not intended for treatment of pernicious anemia or other primary or secondary anemias. Neurologic involvement may develop or progress, despite temporary remission of anemia, in patients with pernicious anemia who receive more than 0.1 mg of folic acid per day and who are inadequately treated with vitamin B_{12}.
Dosage: 1 or 2 tablets daily, as indicated by clinical need.
Available: In bottles of 100.

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* Regional enteritis is revealed in this Xray. The diagnostic signs include scattering (A), "moulage sign" or claylike clumps (B), destruction of the terminal ileal mucosa (C), and fistulation adjoining the terminal ileum (D). There is no thickening of the bowel mucosa or fistulation in malabsorption syndrome.

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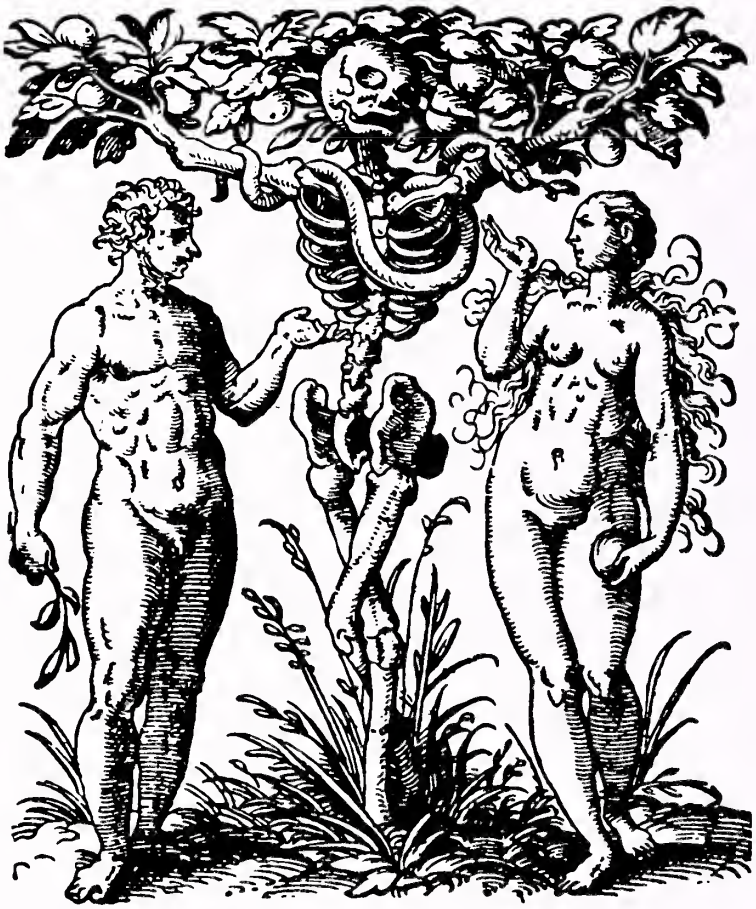
In acute gonorrhea

(urethritis, cervicitis, proctitis when due to susceptible strains of N. gonorrhoeae)



Sterile Trobicin®
(spectinomycin dihydrochloride pentahydrate)—For Intramuscular injections, 2 gm vials containing 5 ml when reconstituted with diluent. 4 gm vials containing 10 ml when reconstituted with diluent.
An aminocyclitol antibiotic active *in vitro* against most strains of *Neisseria gonorrhoeae* (MIC 7.5 to 20 mcg/ml). Definitive *in vitro* studies have shown no cross resistance of *N. gonorrhoeae* between Trobicin and penicillin.

Indications: Acute gonorrheal urethritis and proctitis in the male and acute gonorrheal cervicitis and proctitis in the female when due to susceptible strains of *N. gonorrhoeae*.

Contraindications: Contraindicated in patients previously found hypersensitive to Trobicin. Not indicated for the treatment of syphilis.

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Warnings: Antibiotics used to treat gonorrhea may mask or delay the symptoms of incubating syphilis. Patients should be carefully examined and monthly serological follow-up for at least 3 months should be instituted if the diagnosis of syphilis is suspected.

Safety for use in infants, children and pregnant women has not been established.

Precautions: The usual precautions should be observed with atopic individuals. Clinical effectiveness should be monitored to detect evidence of development of resistance of *N. gonorrhoeae*.

Adverse reactions: The following reactions were observed during the single-dose clinical trials: soreness at the injection site, urticaria, dizziness, nausea, chills, fever and insomnia.
During multiple-dose subchronic tolerance studies in normal human volunteers, the following were noted: a decrease in hemo-

Trobicin®

sterile spectinomycin dihydrochloride pentahydrate, Upjohn

single-dose intramuscular treatment

High cure rate:* 96% of 571 males, 95% of 294 females
(Dosages, sites of infection, and criteria for diagnosis and cure are defined below.)**

Assurance of a single-dose, physician-controlled treatment schedule

No allergic reactions occurred in patients with an alleged history of penicillin sensitivity when treated with Trobicin, although penicillin antibody studies were not performed

Active against most strains of Neisseria gonorrhoeae in vitro (M.I.C. 7.5-20 mcg/ml)

A single two-gram injection produces peak serum concentrations averaging about 100 mcg/ml in one hour (average serum concentrations of 15 mcg/ml present 8 hours after dosing)

Note: Antibiotics used in high doses for short periods of time to treat gonorrhea may mask or delay the symptoms of incubating syphilis. Since the treatment of syphilis demands prolonged therapy with any effective antibiotic, and since Trobicin is not indicated in the treatment of syphilis, patients being treated for gonorrhea should be closely observed clinically. Monthly serological follow-up for at least 3 months should be instituted if the diagnosis of syphilis is suspected. Trobicin is contraindicated in patients previously found hypersensitive to it.

*Data compiled from reports of 14 investigators. **Diagnosis was confirmed by cultural identification of *N. gonorrhoeae* on Thayer-Martin media in all patients. Criteria for cure: negative culture after at least 2 days post-treatment in males and at least 7 days post-treatment in females. Any positive culture obtained post-treatment was considered evidence of treatment failure even though the follow-up period might have been less than the periods cited above under "criteria for cure" except when the investigator determined that reinfection through additional sexual contacts was likely. Such cases were judged to be reinfections rather than relapses or failures. These cases were regarded as non-evaluatable and were not included. JA72 1848-6

globin, hematocrit and creatinine clearance; elevation of alkaline phosphatase, BUN and SGPT. In single and multiple-dose studies in normal volunteers, a reduction in urine output was noted. Extensive renal function studies demonstrated no consistent changes indicative of renal toxicity.

Dosage and administration: Keep at 25°C and use within 24 hours after reconstitution with diluent.
Male—single 2 gram dose (5 ml) intramuscularly. Patients with gonorrheal proctitis and patients being re-treated after failure of previous antibiotic therapy should receive 4 grams (10 ml). In geographic areas where antibiotic resistance is known to be prevalent, initial treatment with 4 grams (10 ml) intramuscularly is preferred.
Female—single 4 gram dose (10 ml) intramuscularly.

How supplied: *Vials, 2 and 4 grams—with ampoule of Bacteriostatic Water for Injection with Benzyl Alcohol 0.9% w/v.* Reconstitution yields 5 and 10 ml respectively with a concentration of spectinomycin dihydrochloride pentahydrate equivalent to 400 mg spectinomycin per ml. For intramuscular use only.
Susceptibility Powder—for testing *in vitro* susceptibility of *N. gonorrhoeae*.
Human pharmacology: Rapidly absorbed after intramuscular injection. A two-gram injection produces peak serum concentrations averaging about 100 mcg/ml at one hour with 15 mcg/ml at 8 hours. A four-gram injection produces peak serum concentrations averaging 160 mcg/ml at two hours with 31 mcg/ml at 8 hours.
For additional product information, see your Upjohn representative or consult the package insert. MED-B-1-S (LWB)

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When irritable colon feels like this

...in the presence of spasm or hypermotility, gas distension and discomfort, **KINESED®** provides more complete relief:

- ☐ **belladonna alkaloids—for the hyperactive bowel**
- ☐ **simethicone—for accompanying distension and pain due to gas**
- ☐ **phenobarbital—for associated anxiety and tension**

Composition: Each chewable, fruit-flavored, scored tablet contains: 16 mg. phenobarbital (warning: may be habit-forming); 0.1 mg. hyoscyamine sulfate; 0.02 mg. atropine sulfate; 0.007 mg. scopolamine hydrobromide; 40 mg. simethicone.
Contraindications: Hypersensitivity to barbiturates or belladonna alkaloids, glaucoma, advanced renal or hepatic disease.
Precautions: Administer with caution to patients with incipient glaucoma, bladder neck obstruction or urinary bladder atony. Prolonged use of barbiturates may be habit-forming.
Side effects: Blurred vision, dry mouth, dysuria, and other atropine-like side effects may occur at high doses, but are only rarely noted at recommended dosages.
Dosage: Adults: One or two tablets three or four times daily. Dosage can be adjusted depending on diagnosis and severity of symptoms. Children 2 to 12 years: One half or one tablet three or four times daily. Tablets may be chewed or swallowed with liquids.

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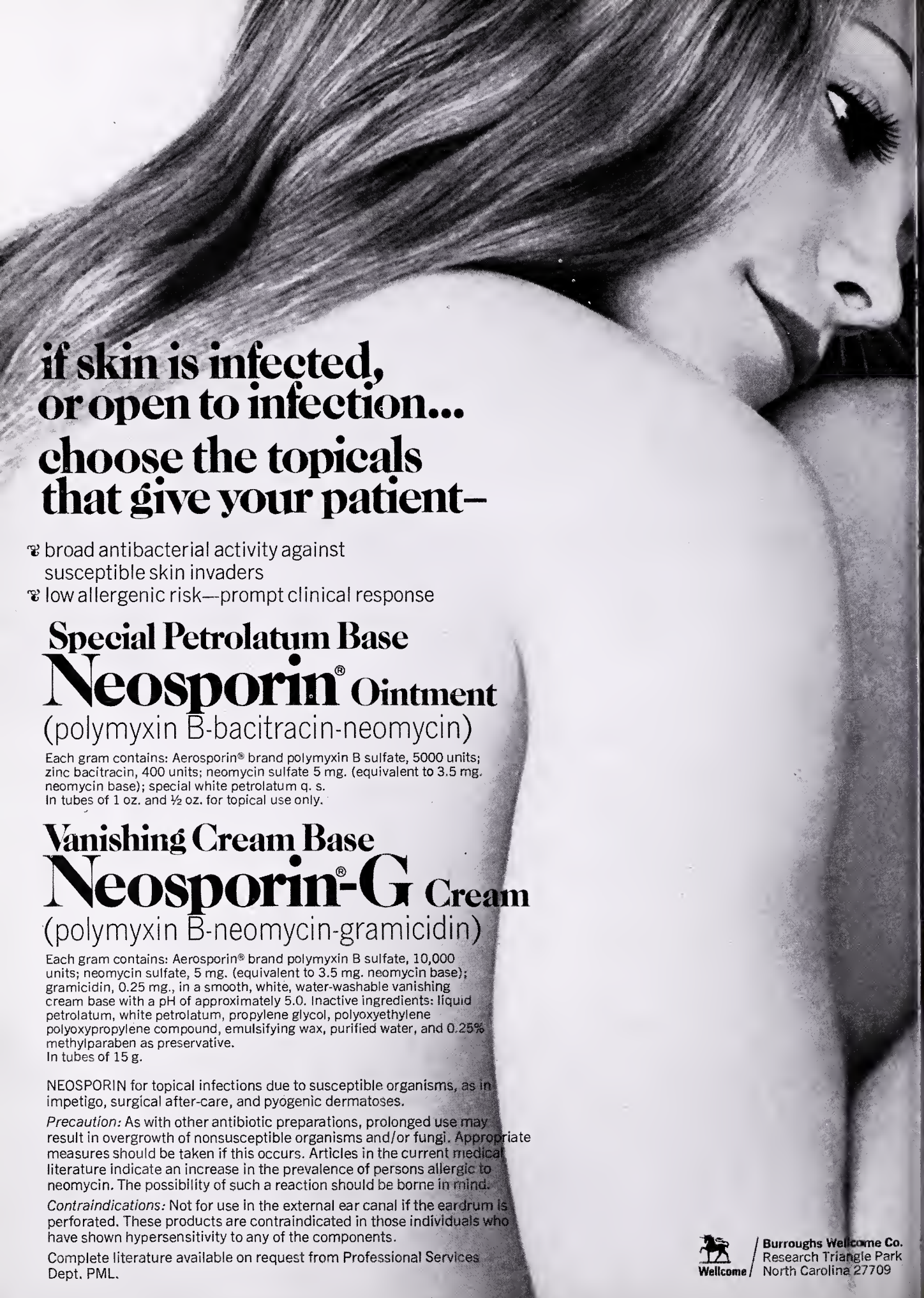
(from the Greek **kinetikos,**
to move,
and the Latin **sedatus,**
to calm)

KINESED®

antispasmodic/sedative/antiflatulent

Spring peeper (tree frog, *Hyla crucifer*): this small amphibian can expand its throat membrane with air until it is twice the size of its head.



if skin is infected, or open to infection...

choose the topicals that give your patient–

- broad antibacterial activity against susceptible skin invaders
- low allergenic risk—prompt clinical response

Special Petrolatum Base
Neosporin® Ointment
(polymyxin B-bacitracin-neomycin)

Each gram contains: Aerosporin® brand polymyxin B sulfate, 5000 units; zinc bacitracin, 400 units; neomycin sulfate 5 mg. (equivalent to 3.5 mg. neomycin base); special white petrolatum q. s.
In tubes of 1 oz. and ½ oz. for topical use only.

Vanishing Cream Base
Neosporin®-G Cream
(polymyxin B-neomycin-gramicidin)

Each gram contains: Aerosporin® brand polymyxin B sulfate, 10,000 units; neomycin sulfate, 5 mg. (equivalent to 3.5 mg. neomycin base); gramicidin, 0.25 mg., in a smooth, white, water-washable vanishing cream base with a pH of approximately 5.0. Inactive ingredients: liquid petrolatum, white petrolatum, propylene glycol, polyoxyethylene polyoxypropylene compound, emulsifying wax, purified water, and 0.25% methylparaben as preservative.
In tubes of 15 g.

NEOSPORIN for topical infections due to susceptible organisms, as in impetigo, surgical after-care, and pyogenic dermatoses.

Precaution: As with other antibiotic preparations, prolonged use may result in overgrowth of nonsusceptible organisms and/or fungi. Appropriate measures should be taken if this occurs. Articles in the current medical literature indicate an increase in the prevalence of persons allergic to neomycin. The possibility of such a reaction should be borne in mind.

Contraindications: Not for use in the external ear canal if the eardrum is perforated. These products are contraindicated in those individuals who have shown hypersensitivity to any of the components.

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¿Habla español?

If not, the new Rocom Health History Questionnaire asks questions in Spanish...

1.	¿Le molestan coyunturas o músculos rígidos o dolorosos?	Sí X	No ___
2.	¿Se le hinchan las coyunturas?	Sí ___	No X
3.	¿Le molestan dolores en la espalda u hombros?	Sí X	No ___
4.	¿Le duelen los pies con frecuencia?	Sí ___	No X
5.	¿Está desabilitado en alguna manera?	Sí ___	No X
6.	¿Tiene algún problema con su piel?	Sí ___	No X
7.	¿Le pica o quema la piel?	Sí ___	No X
8.	¿Sangra por largo tiempo cuando se hace una pequeña cortadura?	Sí ___	No X
9.	¿Se lastima facilmente formando un cardenal o moretc?	Sí ___	No X
10.	¿Se ha desmayado o se ha sentido como que se va a desmayar?	Sí ___	No X
11.	¿Tiene alguna parte del cuerpo siempre adormecida?	Sí X	No ___
12.	¿Ha tenido alguna vez convulciones?	Sí ___	No X
13.	¿Le ha cambiado ultimamente su letra al escribir?	Sí ___	No X
14.	¿Tiene tendencia a temblar o mencarse mucho?	Sí ___	No X
15.	¿Se pone nervioso en presencia de personas extrañas?	Sí X	No ___
16.	¿Se le hace difícil tomar decisiones?	Sí X	No ___
17.	¿Se le hace difícil concentrar o recordar?	Sí X	No ___
18.	¿Se siente solo o deprimido?	Sí ___	No X
19.	¿Llora a menudo?	Sí ___	No X
20.	¿Diría usted que tiene una perspectiva irremediable?	Sí ___	No X
21.	¿Tiene dificultad en relajar o reposar?	Sí X	No ___
22.	¿Tiende a preocuparse demasiado?	Sí X	No ___
23.	¿Le molestan o asustan algunos sueños o pensamientos?	Sí ___	No X
24.	¿Tiende a ser tímido o sensitivo?	Sí ___	No X
25.	¿Se molesta mucho cuando lo critican?	Sí X	No ___
26.	¿Pierde el genio con frecuencia?	Sí X	No ___
27.	¿Cosas pequeñas lo hacen molestar?	Sí X	No ___
28.	¿Le molesta cualquier trabajo o problemas familiares?	Sí ___	No X
29.	¿Tiene algún problema con su vida sexual?	Sí ___	No X
30.	¿Ha considerado alguna vez suicidarse?	Sí ___	No X
31.	¿Ha deseado alguna vez, o buscado, ayuda psiquíatrica?	Sí X	No ___

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provides answers in English

13. MUSCULOSKELETAL
- X aching muscles or joints
- ___ swollen joints
- X back or shoulder pains
- ___ painful feet
- ___ handicapped

14. SKIN
- ___ skin problems
- ___ itching or burning skin
- ___ bleeds easily
- ___ bruises easily

15. NEUROLOGICAL
- ___ faintness
- X numbness
- ___ convulsions
- ___ change in handwriting
- ___ trembles

16. MOOD
- X nervous with strangers
- X difficulty making decisions
- X lack of concentration or memory
- ___ lonely or depressed
- ___ cries often
- ___ hopeless outlook
- X difficulty relaxing
- X worries a lot
- ___ frightening dreams or thoughts
- ___ shy or sensitive
- X dislikes criticism
- X loses temper
- X annoyed by little things
- ___ work or family problems
- ___ sexual difficulties
- ___ considered suicide
- X desired psychiatric help

When your patient speaks little English and your Spanish is limited or nonexistent, you need the new ROCOM Health History Questionnaire (Spanish).*

The uniqueness of this new ROCOM system lies in the fact that the questions are asked in *Spanish,* but you read the answers in *English*. The form itself does the "translating."

You have to see it yourself to appreciate the ease and completeness of this new history-taking technique, which includes 129 questions covering all body systems.

*Created and developed by Patient Care Systems, Inc.

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For information about the new Rocom Health History Questionnaire (Spanish) and other components in the Rocom Medical Management System, please fill out the coupon and send it to us.

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MEDICAL SCHOOL NOTES

University of Colorado Medical Center

Dr. C. Henry Kempe, professor and chairman of the Department of Pediatrics at the University of Colorado School of Medicine, was appointed acting dean of the school by the Board of Regents of the University on December 22, 1971. Dr. Kempe's appointment is effective immediately. He succeeds Dr. Gordon Meiklejohn, professor and chairman of the Department of Medicine, who accepted temporary appointment as acting dean last June and asked to be relieved of the additional administrative responsibilities. A national search is under way for a permanent dean of medicine to succeed Dr. David W. Talmage, who resigned in June to return to his academic post as professor of microbiology and medicine. Dr. Kempe, a distinguished national leader in the field of pediatrics, has headed the Department of Pediatrics since 1956.

The Regents also designated Dr. Frank J. Cozzetto, associate professor of pediatrics, as acting associate dean for faculty affairs in the medical school. Dr. Cozzetto succeeds Dr. Henry N. Claman, who has returned to his duties as associate professor of microbiology and medicine. Dr. Cozzetto, a 1947 graduate of the school, has been affiliated with its faculty since 1954, and from 1964 to 1971 he served as medical director of Children's Hospital in Denver. He rejoined the full-time faculty of the school as an associate professor earlier this year.

* * * * *

Forty health educators, supervising nurses, administrators, and school nurses from the United States and Canada concluded a two-day visit to the University of Colorado Medical Center on January 7, 1972, for a first-hand look at two innovative approaches, which have been developed at the University, to bridging the health manpower gap.

The visitors studied the programs for the training of pediatric nurse practitioners and school nurse practitioners, two new "professions" which expand the role of the nurse in the basic health care of children. The programs have attracted considerable national attention as a means of meeting the country's growing need for health care, and the pediatric nurse practitioner plan is spreading to other medical centers.

The University of Colorado School of Nursing hosted the visitors, and Mrs. Joy Clausen, assistant professor and coordinator of maternal-child nursing, served as conference coordinator. Under the programs the pediatric and school nurse practitioners receive their special intensive training through the continuing education services of the nursing school.

Mrs. Elda S. Popiel, assistant dean of the nursing school in charge of continuing education, said the conference participants were briefed on course content, approaches to study, and program evaluation, as well as opportunities for informal discussions with students, nurse practitioners now in practice, and faculty members. The participants also observed students and practitioners seeing and working with patients.

In addition to Mrs. Popiel, speakers at the conference included Dr. Henry K. Silver, professor of pediatrics at the School of Medicine, who was instrumental in developing the programs; Miss Mary Alexander, Miss Judith Bellaire, Mrs. Marie Brown, and Mrs. Ann N. Smith, assistant professors of nursing who teach in the programs; Mrs. Aria Rosner, supervisor of nursing for the Denver Public Schools, one of the leaders in developing the school nurse practitioner approach; Dr. Lewis R. Day, Wheat Ridge pediatrician, and the pediatric nurse practitioner who assists him, Miss Rosemarie Egli; Dr. Burris Duncan, assistant professor of pediatrics; Dr. Norman A. Hilmar, professor of sociology on the Boulder campus of the University; and Dr. Nancy Nelson, assistant professor of pediatrics.

* * * * *

Drs. Ernest Borek and Seymour S. Cohen of the University of Colorado School of Medicine were invited to the White House for the signing of the new National Cancer Plan legislation on December 23, 1971. The Denver men, both professors of microbiology at the medical school, are internationally prominent in the field of cancer research. They serve on the committees of distinguished scientists who are drafting plans for the achievement of national objectives under the new cancer attack legislation.

Dr. Borek was appointed to the medical faculty in 1968, coming to Colorado from Columbia University. He is the author of *The Atoms Within Us* and *The Code of Life* as well as numerous contributions to scientific literature in the fields of protein synthesis, molecular biology, nucleic acid structure, and radiation biology.

Dr. Cohen joined the medical faculty in September 1971 after serving on the faculty of the University of Pennsylvania since 1943. In 1957 he was awarded the first lifetime-endowed professorship of the American Cancer Society. He is a member of the National Academy of Sciences and is noted for his research in cell biology, including his discovery that virus infection causes host cells to produce new enzymes. He has been the recipient of numerous awards for his scientific work, including the Borden Medal, the first Mead Johnson Award of the American Academy of Pediatrics, the Newcomb Cleveland Medal of the American Association for the Advancement of Science, the medal of the Société de Chimie Biologique of France, and the Eli Lilly Medal.

An eighth unrestricted grant of $5,000 has been awarded to the Division of Ophthalmology at the University of Colorado School of Medicine by Research to Prevent Blindness, Inc., of New York City, to accelerate research of blinding diseases. Annual grants now totaling $40,000 have been made to the University's ophthalmology division since 1964 to provide financial support to a wide range of new and supportive research activities seeking better diagnosis and treatment of eye diseases which rob patients of their sight.

Dr. Philip P. Ellis, professor and head of the division, said the continuing grants have significantly strengthened the eye research program at the Medical Center. "The unrestricted dollars from Research to Prevent Blindness speed the entire investigative process," Dr. Ellis said. "They enable us to take immediate advantage of scientific opportunities that otherwise would be missed or postponed. It is this kind of imaginative support that continuously extends our ability to save sight." The RPB grants have been used at the Medical Center as "seed money" to initiate new research projects and as supplemental assistance to continuing research programs. Ophthalmological research at the Medical Center has been particularly active in studies of the effects of certain drugs in treatment of eye diseases and the side effects of the drugs.

Research to Prevent Blindness has channeled more than $19 million into eye research, providing annual grants to 46 medical institutions and implementing construction of modern eye research centers across the nation. In announcing the new grant, Dr. Jules Stein of Los Angeles, national chairman for RPB, said that modern technology has opened unprecedented opportunities for the conquest of cataract, glaucoma, diabetic retinopathy, and other diseases which will blind 500,000 Americans during the present decade unless they are controlled. "We must give scientists the laboratories, the equipment, the personnel, and the money to put this new capability to work in the saving of sight," Dr. Stein said. "It is RPB's purpose to reduce that terrible toll and to prevent millions more from suffering serious loss of vision."

University of Nevada School of Medical Sciences

Notices of acceptance were mailed in late December to 41 persons who have been admitted to begin study in the fall of 1972 in the two-year medical curriculum of the School of Medical Sciences, University of Nevada, Reno. The new students were selected from approximately 1,100 applications, more than 100 of which were from Nevadans. From one to four more students are still to be selected for 1972 admissions, and 48 new students are to be admitted each year thereafter, said Dr. Dean C. Fletcher, director of student affairs for the medical school.

As the second class in the new medical school, this group will join the 32 students who began medical studies when the school opened in September 1971. The new class includes ten women, one of whom is black. Twenty-one are from Reno, nine from Las Vegas, and eight are from other Nevada locations. Dr. Fletcher said that there were approximately 90 applications from Reno students compared to approximately 40 from Las Vegas for the 1972 academic year. Following numerous interviews with potential medical students on both the Reno and Las Vegas campuses, Dr. Fletcher concluded that the fact that Reno has some 300 pre-medical students and Las Vegas only 60 accounts for the difference in the number of applicants.

By including certain studies in earlier years, by increasing relevancy, and by innovative teaching technics, the time required to prepare for practice as a physician has been shortened. As a result, eight of the new students who are in their junior or third year of undergraduate work will enter the medical school without baccalaureate degrees, because they will have completed all requirements in less than the usual four years. Seven of the eight students participated in the new University of Nevada at Reno pre-medical program of the School of Medical Sciences and Health Sciences Program, and one is from Brigham Young University in Utah.

Dr. George T. Smith, dean of the School of Medical Sciences, said that more students were admitted to the first class (32 rather than 24) and

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more are being admitted to the second class (42 rather than 36) than had originally been planned. This is to "provide more opportunities for the large number of qualified applicants and to respond to the need for more practicing physicians". "We are able to do this," Dr. Smith said, "substantially because of the willingness of our faculty to take on increased responsibilities, the rapid development of our Educational Support Division, generous part-time teaching by practicing physicians, and affiliation with community health care institutions and facilities."

University of New Mexico School of Medicine

The New Mexico Tumor Registry, which currently lists more than 9,000 tumor cases in 49 hospitals in New Mexico and Arizona, has recently been admitted to the International Association of Cancer Registries. The Association has about 60 member registries from throughout the world, including ten from the United States. In addition to services to individual hospitals, it is concerned with collection and analysis of data on cancer incidence and treatment in defined population groups, such as an entire nation or state. A new venture of the Association is a technical information exchange on procedural problems encountered in registering specific patient groups. Member registries exchange information on data collection and reporting technics.

The New Mexico Registry was begun by the Regional Medical Program in 1967. It is headed by Dr. Charles Key, program coordinator for cancer, and Dorothy Brylinski, project director. A primary function of the Registry is to promote and assist the follow-through of medical care for cancer patients. More than 600 physicians report regularly on progress of treatment, and such information is compiled statewide to be sent out in monthly and annual reports. The Registry becomes a tool for evaluating the effectiveness of different treatment methods and provides a source of information to physicians interested in further study.

Information is gathered by Regional Medical Program abstractors who make regular visits to participating hospitals to record the cancer cases seen in them. Almost all hospitals in the state with 50 or more beds are included. The New Mexico Registry is unique in having a large number of hospitals receiving complete tumor registry services from one central computerized facility.

* * * * *

Two new projects at the University of New Mexico School of Medicine are currently combining their resources in an effort to determine what connections, if any, do exist between nutrition and certain emotional disorders in preschoolers.

Children being screened for admission to the model Vista Larga Therapeutic School Project at Bernalillo County Mental Health/Mental Retardation Center will now be given a "nutritional screening" as part of the regular procedures to determine levels of certain essential vitamins and minerals in their blood and urine. Blood and urine samples, drawn routinely as part of each child's physical examination, will be sent to the University's newly-funded nutrition laboratory for analysis. The lab is directed by Dr. Francis LeBaron, chairman of the Department of Biochemistry, under the University's Nutrition Improvement Project, which is funded by a two-year grant of $311,633 from the Office of Economic Opportunity to promote better health in New Mexico through improved nutrition.

Robert A. Klein, assistant director of the Vista Larga Therapeutic School Project, said that with some adult psychiatric disturbances, there is evidence of abnormal concentrations of certain minerals in the blood and urine. Few studies in the area have been performed for children, however. "The New Mexico project has important implications, both for individual clinical treatment of the child and national research, since this is one of the few places—perhaps the only—in the nation to give such comprehensive routine screening to disturbed children," Mr. Klein said. It is not definitely known what is a high or low concentration for children, but by evaluating both normal and emotionally disturbed children, data base lines can be established. A laboratory technologist at the University, Luis Cuza, is using an atomic analyzer to perform the tests. In addition to the usual blood and urine screening, it has the specific capability of analyzing trace minerals such as copper, zinc, and maganese.

Nancy Weaver, nutritionist for the Mental Health Center's Program for Children, said brain development takes place during the mother's pregnancy and first six months of the child's life. If the mother or child is undernourished or improperly nourished during this period, irrevocable brain damage may result. Once this occurs the child cannot be cured, but he may be helped by a restructured diet.

In the Vista Larga School Project, Mrs. Weaver interviews parents to determine a child's past and present eating habits, general dietary problems, and level of feeding skills. She then recommends a dietary program and discusses nutrition progress with the child's parents. Menus are sent home weekly to parents, and meals will also be served at the school as part of the parent-teacher-therapist role in the classroom. Care is taken to make the feeding situation as pleasant as possible, and the children will help set the table, serve food, wash dishes, and even help with food preparation when appropriate.

The Vista Larga Therapeutic School Project, funded by the Bureau of Education for the handicapped, is designed to help children ages three to seven who have serious emotional, behavioral, or learning problems. The first class of ten to twelve students began in January 1972.

"For generations my family has insisted on Donnagel®-PG," says active young matron Mrs. T. Farnsworth Lipp (of the Upper Lipps), shown here with her charming son. "All the benefits of paregoric—without the unpleasant taste, don't you know? And Junior thinks Donnagel-PG tastes so much like bananas that I never worry about a slip between spoon and Lipp."

A Matter of Taste

With or without a silver spoon, a most tasteful solution in treating acute, non-specific diarrheas: all the benefits of paregoric, without the unpleasant taste. Donnagel®-PG treats accompanying cramping, tenesmus, and nausea as well as the diarrhea itself. Instead of unpleasant-tasting paregoric, it contains the therapeutic equivalent, powdered opium, to promote the production of formed stools and lessen the urge. And it provides the demulcent-detoxicant effects of kaolin and pectin, plus the antispasmodic benefits of belladonna alkaloids. And a good banana flavor to baby any taste.

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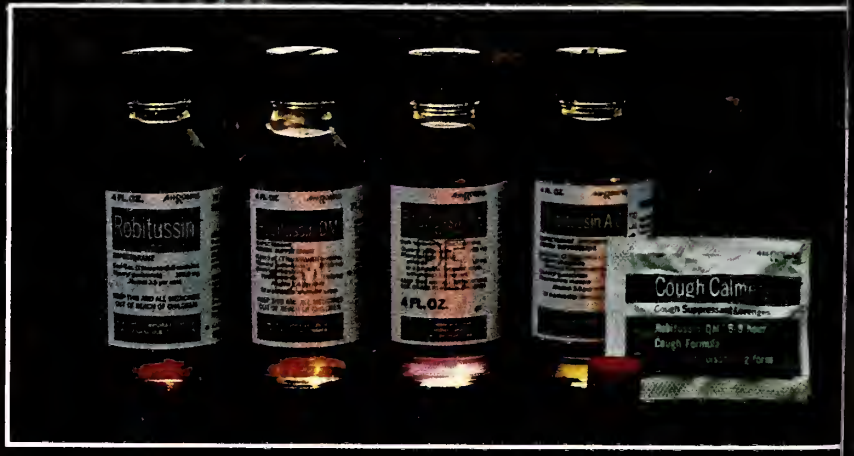

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ROBITUSSIN A-C®	●	●			
ROBITUSSIN-DM®	●		●		●
ROBITUSSIN-PE®				●	●
COUGH CALMERS®	●		●		●

A. H. Robins Company,
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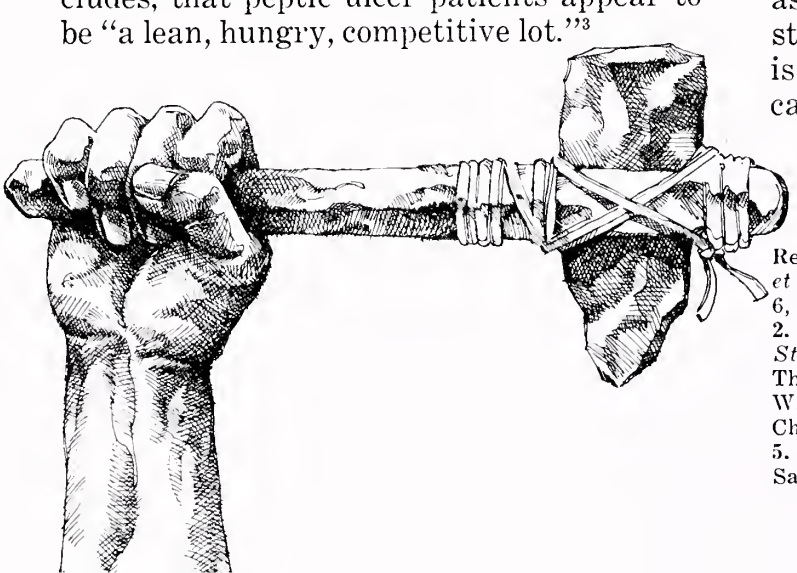
IF MORE MEN CRIED

At least seventy-five out of one hundred adults with duodenal ulcers are men.[1] Why? It may be significant that duodenal ulcer patients tend to crave recognition and are "especially vulnerable to threats to their manly assertive independence."[2]

Hypersecretion—an atavistic response. Stewart Wolf, who, with Harold G. Wolff, studied the personalities of duodenal ulcer patients, wonders if masculine competitiveness is related to "an atavistic urge to devour an adversary." It is striking, he reports, that an accentuation of gastric acid secretion and motility can be "induced in ulcer patients by discussions that arouse feelings of inadequacy, frustration and resentment."[2]

By chance? A lean, hungry lot. Was the link between emotions and gastric hyperacidity acquired through mutation to serve a purpose? During man's jungle period of evolution, the investigator points out, a male dealt with a foe by killing and devouring it. "It may be more than coincidence," he concludes, that peptic ulcer patients appear to be "a lean, hungry, competitive lot."[3]



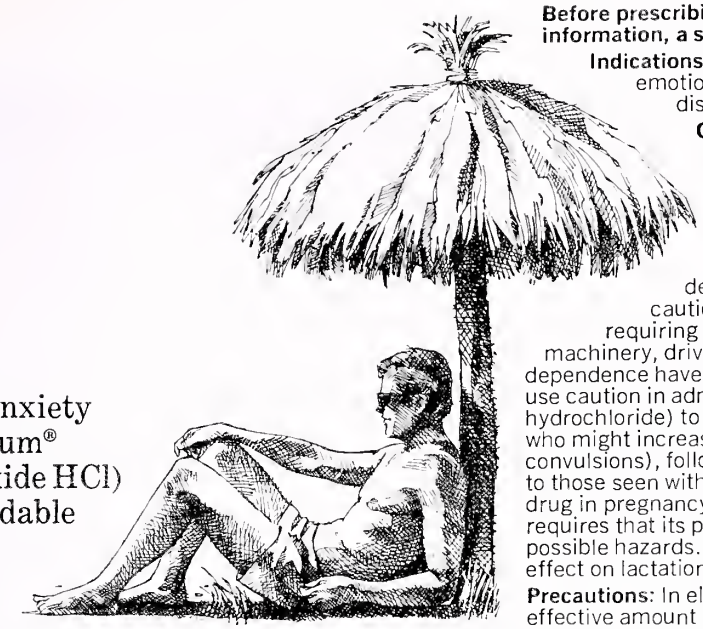
Big boys don't cry. If more men cri maybe fewer would wind up with duoden ulcers. But men will be men—the sum total their genes and what th are taught. Schottstae observes that when mother admonishes h son who has hurt himsc that big boys don't cry, s is teaching hi stoicism.[4] Crying is t negation of everythi society thinks of as manl A boy starts defending h manhood at an early ag

Take away stres you can take away symptom

There is no question that stress plays role in the etiology of duodenal ulce Alvarez[5] observes that many a man with a ulcer loses his symptoms the day he shuts u the office and starts out on a vacation. Th problem is, the type of man likely to have a ulcer is the type least likely to take lor vacations or take it easy at work.

The rest cure vs. the two-way action Librax.® For most patients, the rest cure as unrealistic as it is desirable. Still, th stress factor must be dealt with. And he is where the dual action of adjunctive Libra can help. Librax is the only drug that con

References: 1. Silen, W.: "Peptic Ulcer," in Wintrobe, M. M *et al.* (eds.): *Harrison's Principles of Internal Medicine*, e 6, New York, McGraw-Hill Book Company, 1970, p. 14 2. Wolf, S., and Goodell, H. (eds.): *Harold G. Wolf Stress and Disease*, ed. 2, Springfield, Ill., Charles Thomas, 1968, pp. 68-69. 3. *Ibid.*, p. 257. 4. Schottstaec W. W.: *Psychophysiologic Approach in Medical Practi* Chicago, Ill., The Year Book Publishers, Inc., 1960, p. 1 5. Alvarez, W. C.: *The Neuroses*, Philadelphia, Pa., W. Saunders Company, 1951, p. 384.



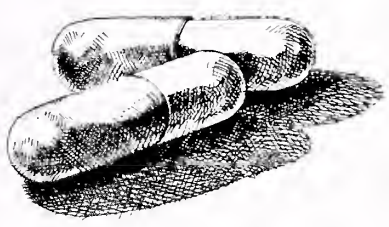
bines the antianxiety action of Librium® (chlordiazepoxide HCl) with the dependable antisecretory/ antispasmodic action of Quarzan® (clidinium Br).

Protects man from his own hungry personality. The action of Librium reduces anxiety—helps protect the vulnerable patient from the psychological overreaction to stress that clutches his stomach. At the same time, the action of Quarzan helps quiet the hyperactive gut, decreasing hypermotility and hypersecretion.

An inner healing environment with 1 or 2 capsules, 3 or 4 times daily. Of course, there's more to the treatment of duodenal ulcer than a prescription for Librax. The patient—with your guidance—will have to adjust to a different pattern of living if treatment is to succeed. During this adjustment period, 1 or 2 capsules of Librax 3 or 4 times daily can help establish a desirable environment for healing.

Librax: It can't change man's nature. But it can usually make it easier for men to cope with the discomfort of stress—both psychic and gastric—that can precipitate and exacerbate duodenal ulcer.

Librax: Rx #60 1 cap. *a.c.* and 2 *h.s.*



Before prescribing, please consult complete product information, a summary of which follows:

Indications: Indicated as adjunctive therapy to control emotional and somatic factors in gastrointestinal disorders.

Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

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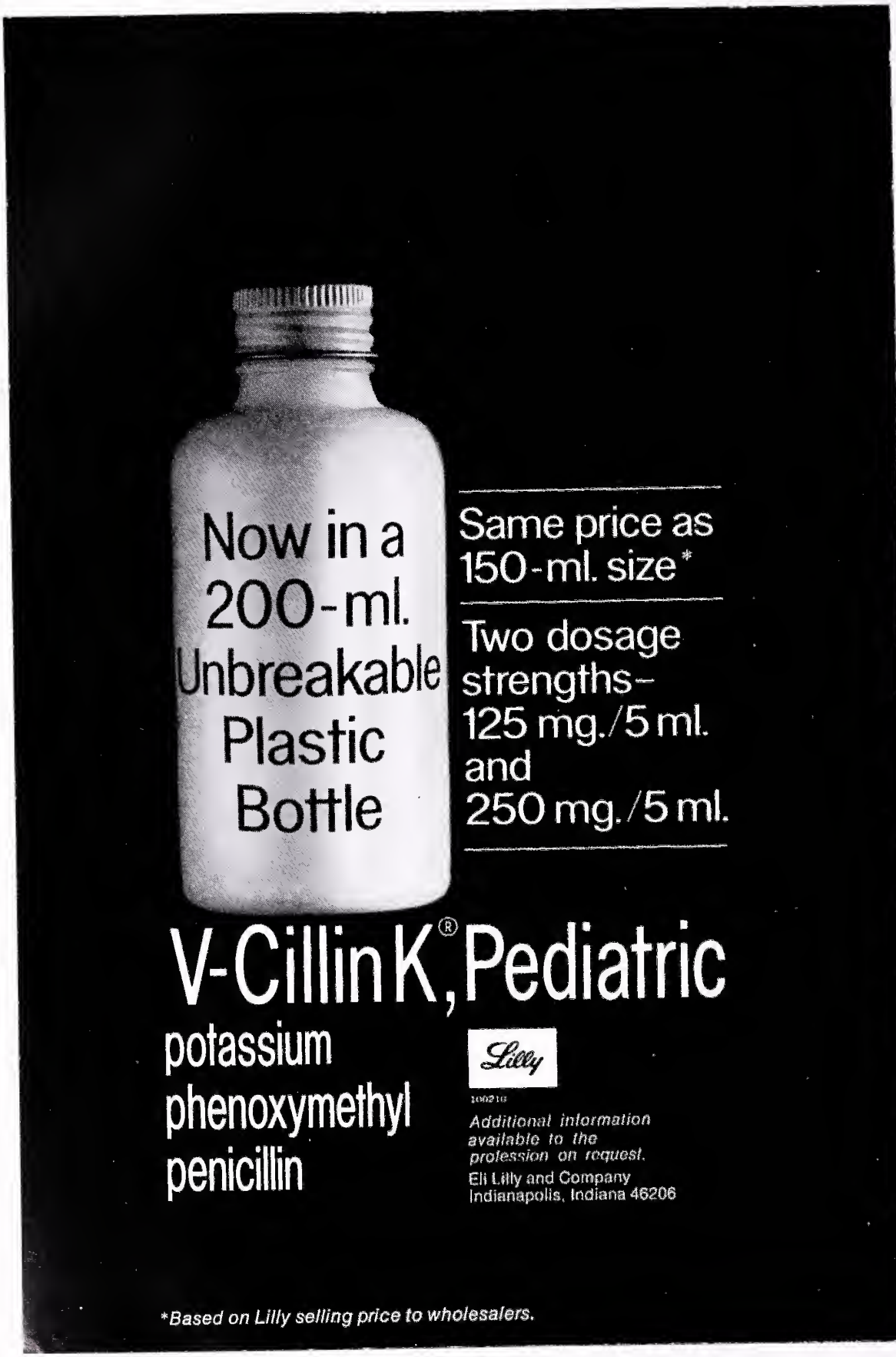
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Expectations

THE LABORER HAS PAIN in his back after heavy lifting; he is not satisfied with his medical care or amenable to cure until he has an X-ray examination. Several times a week the physician feels obligated to order an extensive investigation although he believes there is a 99 per cent chance that his working diagnosis is correct. What constitutes a routine yearly physical for a man over fifty? How often should it include an upper GI and a barium enema? Who should have the $300 "executive type"? If once a year is good, is twice a year better? How much time and money should be spent to discover the unknown primary of a patient with extensive metastatic malignancy? Should every patient with irreversible renal disease have repeated dialysis? There is no end to questions of this type. For every patient, the doctor makes judgments which affect the cost of health care. At what point is the next step in diagnosis or treatment not worth the cost?

What is Total Health Care? It is now the declared right of every American, but no one knows exactly what it is or what it costs. The nation continues to create the expectation in its people of the ultimate in health care. Sometimes this is done through the good intentions of dedicated medical experts. More often these expectations are aroused by the less pure intentions of less informed politicians. But, total health care has not been defined in terms of a practical and fiscally feasible goal. The opinion of organized medicine has limited influence on the government in problems of health care. However, at this moment, we doctors either have not formulated our own definition of feasible optimum care, or those that have, have either not the courage or the forum to present it. In many European countries the economics of providing medical care have caught up with the system, and cost exerts a controlling influence. In America by the uttered opinion of the politician there is no fiscal limit for proposals that are for the good of the people.

Unfulfilled expectation is a common problem of every civilized nation. People have been educated to expectations which their country has not provided. The importance of expectations varies with its nature and with the possibility of its fulfillment. The great problem of the majority of the nations of South America is that through radio, television, and other contacts with Europe or North America the people have become educated to a standard of living far above their own—but their countries do not have the resources to provide this standard of living. The inevitable consequence of unfulfilled expectation is frustration, then unrest, then violence, then revolution.

Expectation of the ultimate in health care by Americans initiates the same consequences as expectations anywhere else and in any other form. Expectation regarding health care is only one of many expectations abroad in our country—but it is an important one. Only the medical profession has the composite knowledge necessary to define a practical plan of health care within the fiscal limitations of the nation. Until we as doctors, define total health care so that it is an attainable expectation we shall continue to be frustrated by our inability to find the answers to the problems of providing medical care. Until the government accepts the direction of organized medicine and defines a plan, expectations of a total health program, exploited by politicians, will continue to be a frustration to the people. In turn, this frustration will lead to an irrational solution. This is the danger—real and immediate!

Inequities in Medical Liability

EVERY PHYSICIAN IS DEEPLY concerned about increased and increasing premiums on malpractice insurance. The premiums are, of course, based upon experience as throughout the insurance business. The high premiums have much to do with fees which physicians and surgeons must charge, and they are also a great factor in choice of location among the younger colleagues. It also weighs heavily in deliberations of the older men who no longer care to carry the burdens of the busy practices of their middle years. It does not seem fair that the same enormous insurance premiums should be paid by a surgeon doing 100 operations as the one who does 500 or 600 in a year.

When the insurance industry digests the impact of the wave of malpractice claims, a high per cent with no merit whatsoever, perhaps it will give just attention to the age, experience, and volume of work performed by their policy holders. Certainly it deserves the same attention as the "no-fault" aspects of automobile driver liability contracts!

Assembly-Line Medicine Won't Work

READERS ARE FAMILIAR with our feature "Potpourri" by Dr. Andrew M. Babey of Las Cruces, New Mexico. These words of wisdom are always worthy of attention. They remind us of many of the facts of life and medicine, and often point up practical philosophy applicable to all people, particularly our patients.

Permit us to call your attention to paragraphs two, three, and four of the feature in this issue of our *Journal*. They are quotations from the Saturday Review of August 14, 1971, with reference to an article by Harry Schwartz entitled "Health Care in America: A Heretical Diagnosis". It is interesting to note the perspective of a thoughtful layman expressed in a lay publication. You'll find it both interesting and heartening. You may not agree with the diagnosis, but it is food for thought.

Ergotism causing peripheral vascular ischemia*

Martin G. McLoughlin, MD, and Richard J. Sanders, MD, Denver, Colorado

Ergotism, familiar to the old-time physician, must still be part of the differential diagnosis of peripheral vascular ischemia.

CHRONIC TOXICITY with ergot alkaloids today is a relatively rare occurrence. Peripheral vasoconstriction, severe enough to cause ischemia and even gangrene of an extremity is a seldom seen manifestation of such toxicity. A 35-year-old woman, who presented with acute ischemia of her legs, was first thought to have a saddle embolus of the abdominal aorta. Thorough history revealed that the patient had been taking ergot containing drugs for many months on a daily basis. This led to the diagnosis of ischemia secondary to ergot ingestion.

CASE REPORT

A 35-year-old housewife was admitted to General Rose Memorial Hospital on July 27, 1969, with pain, coldness, numbness and blueness in the right foot for the past 18 hours. She had a hysterectomy for hypermenorrhagia four days prior to admission. Her vascular symptoms had actually begun some six months ago with intermittent claudication in both legs. This had been progressive and at the time of admission appeared on walking one block uphill. Her past history revealed that she had been suffering from progressively severe headaches for over two years and had been taking ergotamine tartrate, orally and rectally, for almost a year on a daily basis. The patient's migraine actually dates back to age 12 when she began having characteristic symptoms. At age 23 she began taking ergotamine tartrate occasionally for relief of headaches. During the two years prior to admission she continued to have the same migraine headache, but also developed a severe constant bitemporal, bifrontal pain. This had become more constant during the past several months as her intake of ergotamine tartrate increased to the point where she was using at least one or two suppositories per day. The patient had had an extensive neurologic evaluation three years prior to admission for these severe headaches, which had included a normal physical examination and a normal electroencephalogram. No explanation was found for the headaches. She had been advised to use ergotamine tartrate only occasionally, when the headaches were very severe.

On physical examination the systolic blood pressure was palpated at 90 mm Hg in the right arm and 70 mm Hg in the left arm. The pulse rate was 90 per minute and regular. The dorsalis pedis, posterior tibial, and popliteal pulses were absent bilaterally. The femoral pulses were feeble. The radial pulses were weak, but were present. Funduscopic examination revealed hairline arterioles. The lower extremities were cold, numb, and cyanotic. The right leg was mottled and tender to the mid-calf. The left leg was mottled only in the foot and was not tender. She complained of constant pain in her feet, the right being much worse than the left. On admission, her white blood count, hemoglobin, urinalysis, and electrolytes were all normal.

Plethysmography failed to demonstrate pulses in either foot (Fig. 1a). An arteriogram performed on the evening of admission demonstrated both iliac arteries to be narrowed to 1 to 2 mm in diameter. The superficial femoral arteries were even smaller, and no blood flow could be seen below the mid-femoral artery (Fig. 2a).

Following these studies it was obvious that the admission diagnosis of a saddle embolus was incorrect. A new diagnosis was made of severe spasm of the femoral and iliac arteries, secondary to ergotamine toxicity.

During the initial 24 hours the patient was first treated with an epidural and then a spinal anesthetic. These gave little relief. Intravenous calcium and morphine sulfate gave no relief. Her legs remained constantly painful, numb, and ischemic during the first 24 hour period of observation. A right lumbar sympathectomy was performed on the second hospital day. Postoperatively

*From the Department of Surgery, General Rose Memorial Hospital, The University of Colorado Medical Center, and the Veterans Administration Hospital, Denver, Colorado. Reprint Requests: Richard J. Sanders, MD, 800 Clermont Street, Denver, Colorado 80220.

intravenous alcohol, tolazoline hydrochloride (Priscoline),® and procaine hydrochloride were added to her intravenous therapy. There was no significant change in her pain, nor in the color or temperature of her feet for the next several hours. However, about 24 hours after the sympathectomy, both feet became warmer and pinker, and the pain in her right foot began to decrease. Within two days the mottling had faded and the pulses were palpable in the femoral and popliteal arteries. Within another two days the pedal pulses were all present.

Aortography was performed on the eighth postoperative day and demonstrated completely normal iliac, femoral, popliteal and tibial arteries bilaterally (Fig. 2b). Repeat plethysmography also demonstrated good pulses in the toes and normal pressures (Fig. 1b). At the time of her discharge on the 11th postoperative day, the patient was walking comfortably. She did complain of slight parasthesias, numbness, and hypesthesia in the toes of the right foot. These symptoms were mild and did not prevent her from wearing a shoe. When seen two months postoperatively, the patient was still having mild causalgic symptoms in her right foot. She had not experienced a migraine headache in two months. The only medication she was taking for headaches was Fiorinal.®

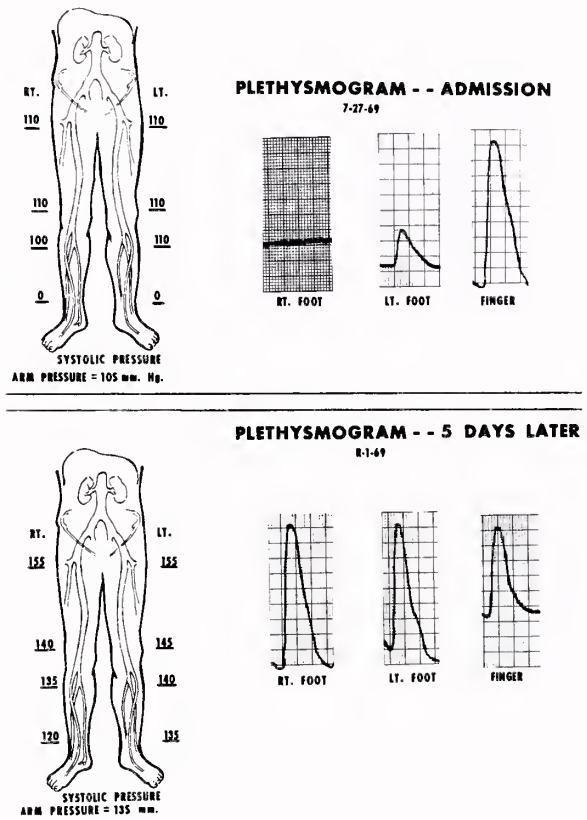

Fig. 1a, above, The plethysmogram on admission demonstrated a normal pulse contour in the finger, a greatly diminished pulse contour in the toes of the left foot and no pulse in the toes of the right foot. The ankle pressures were unobtainable in either foot, while the pressures at the knee and thigh were fairly good.

Fig. 1b, below. The plethysmogram five days after admission revealed dramatic improvement. The pulse contours in the toes had returned to normal, the ankle pressures were now equal to the arm pressure with normal increases in pressure in both legs. The plethysmograms were performed with a photoelectric cell attached to the tip of the finger or toe.

Discussion

Historically, epidemics of "St. Anthony's Fire" were common during the middle ages among people eating rye and other grains. These devastating epidemics were characterized by gangrenous and mummified limbs falling from the victim's body. It was not until 1670 that the parasitic fungus ergot was proven to be the toxic agent.

Ergot's pharmacological use in headache was first suggested by Thomson, in 1894.[1] In 1921 the alkaloid ergotamine tartrate, a derivative of lysergic acid, was developed and is now the most popular agent in the treatment of migraine. It is postulated that ergot's beneficial action is due to a specific vasoconstrictor effect on the extracerebral blood vessels which are dilated and pulsate during an attack of migraine. The main toxic side effects are due to its alpha-adrenergic blocking activity with ensuing peripheral vasoconstriction.[2]

The incidence of side effects from ergotamine has been reported to be 0.01 per cent, the toxicity usually being secondary to abuse of the drug.[3] In 1967 a case of multiple arterial thrombi and vasospasm was reported in a female taking birth control pills and ergotamine tartrate.[4] It is postulated that vasoconstriction from ergotamine predisposes a higher incidence of thrombosis when used in association with oral contraceptives.

The first case of ergotamine toxicity studied angiographically was in 1936.[5] The radiographic findings in that case, as well as the several reported since, are quite similar.[2,6,7,8,9] Vasospasm is the most common finding. This may be segmental or diffuse. It is usually bilaterally symmetrical. In most cases it has been reversible, with follow-up angiograms taken one week to several months after the initial diagnosis demonstrating a return to normal. The present case

Fig. 2a. Translumbar aortogram on admission demonstrated severe narrowing of the external iliac and femoral arteries and occlusion of the popliteal arteries bilaterally. The severe spasm in the external iliac arteries can be appreciated by comparing their size to the adjacent internal iliac arteries, which are much larger in diameter.

Fig. 2b. Translumbar aortogram nine days after admission and eight days following a right lumbar sympathectomy. The iliac, femoral, and popliteal arteries are all of normal size. The tibial arteries were also normal down to the ankles (although these films are not published here).

report confirms that, angiographically, a complete recovery is possible in just a few days.

Ergotamine toxicity may be divided into three types: Acute toxicity, due to the short-term administration of small doses and resembling an allergy; acute poisoning from the short-term intake of very high doses; and chronic poisoning from the prolonged intake of therapeutic doses, as in this case.[10] Chronic ergotamine toxicity is usually dose related, although there is an increase in sensitivity to ergotamine in patients with febrile states, diseases of the liver (where the drug is detoxified) occlusive vascular disease, coronary

artery disease, and thyrotoxicosis.[11] Ergotism (ergot toxicity) usually comes on slowly with vague symptoms of peripheral ischemia such as parasthesias in the toes or intermittent claudication. These warnings occur weeks to months before overt clinical signs appear. A full attack of chronic ergotism may be associated with nausea, vomiting, diarrhea, and dizziness. Vascular changes usually involve the lower limbs and suggests that a severe arterial block is present. Profound peripheral vasoconstriction results in decreased or absent pulses and mottling of the skin. The severity of the picture is dose, time, and sensitivity related. Gangrene is rare, and is thought to be due not only to intense constriction of the arterioles, but to intimal thickening and eventual thrombosis.[6]

The diagnosis of ergotism is made by a history of chronic ergotamine ingestion in a patient with peripheral ischemia or gangrene. Plethysmography verifies a poor distal circulation and will indicate bilateral involvement even though the patient has symptoms in just one leg. Arteriography may reveal not only small vessel constriction but femoral and iliac artery vasospasm as well. There is no definitive treatment for chronic ergotism other than withdrawal of the drug. There is no medication that will counteract the drugs muscarinic effects. Sympatholytic drugs (vasodilators) have been tried by several investigators without significant response either experimentally or clinically.[11]

Sympathectomy may block some of the vasoconstrictor effects of ergotamine if done before the drug is given,[12] but probably can do nothing when performed after the ergotamine has taken effect.

In this patient, vasodilators, epidural anesthesia, and even spinal anesthesia were all performed in the patient's first 24 hours in the hospital with no response. Her right foot remained numb, cold, and cyanotic. It was because her symptoms did not improve in the second 24 hours that a right lumbar sympathectomy was performed, as there was nothing else to offer the patient for a foot that seemed to be developing gangrene. Following right lumbar sympathectomy, the patient did not improve for several more hours. Then over a two day period, both feet became warmer, the pain improved in the right foot, and the pulses reappeared in both legs. Nine days after admission, the aortogram was completely normal. In spite of this, she still complained of mild pain, parasthesias, numbness, and tingling in the toes of her right foot. These are symptoms of causalgia and are significant. They indicate the severe degree of ischemia that the right foot endured for a few days, and how close it was to gangrene. This situation is very similar to a frost-bitten foot. In retrospect, the sympathectomy seemed most effective in helping to relieve the causalgic symptoms of this ischemic foot, which were still present, but quite mild, two months later. It is doubtful that the sympathectomy had much to do with reversal of the ergotism since the unoperated leg improved at the same rate as the operated one. The patient probably recovered from withdrawal of the drug.

The most important feature of this disease is that it is completely preventable. Ergotamine tartrate should be used and prescribed with caution. It should not be used continuously over long periods of time.

Summary

A case is presented of a 35-year-old woman with severe ischemia of the legs, bordering on gangrene of one foot. This proved to be the toxic effects of chronic ergotamine ingestion for migraine headaches. Aortography on admission demonstrated severe vasospasm of the iliac and femoral arteries. She was treated with vasodilators, sympathetic blocks, stopping the ergotamine, and finally a right lumbar sympathectomy. There was no immediate response to any form of therapy. After a few days, her symptoms began to rapidly improve, and a week later she had only mild causalgia in the right foot. Nine days after admission a repeat aortogram was completely normal. It was felt that the reversal was due to withdrawal of the drug and that sympathectomy was of benefit only in reversal of the causalgia secondary to the prolonged ischemia of the right leg.

Ergotism is an iatrogenic condition and can be prevented by the judicious use of ergotamine for migraine headache. •

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Radiation-induced premalignant fibroepithelioma of the groin*

Stanley Weitzner, MD, Albuquerque, New Mexico

Report of the first case of an unusual form of basal cell carcinoma that developed in a site of radiation therapy.

PREMALIGNANT FIBROEPITHELIOMA is an uncommon, peculiar variant of basal cell carcinoma described in 1953 by Pinkus.[1] Forty-nine[2-12] cases have been reported including the 29 reviewed in 1963 by Grinspan and Abulafia.[2] Premalignant fibroepithelioma has a predilection for the lumbar-sacral area. (Table 1) It was solitary in 30 patients and multiple in 19. The lesion presents as a flesh or red colored, soft to firm, plaque or pedunculated nodule varying from several millimeters to 6.7 x 7.5 cm in greatest dimensions. Only several[2,4,7,8] were 4.0 cm or larger. There is no predilection for either sex. The age of the patients at the time of diagnosis was 39 to 87 years; 41 were 50-79 years of age. Although most of the patients noticed the lesion(s) for several months to five years, in several it was purported to have been present since infancy and/or for 30 years or longer. Some patients also had many seborrheic keratoses and basal cell carcinomata. Transition of a premalignant fibroepithelioma into an ulcerating basal cell carcinoma may occur.

TABLE 1
Location of Premalignant Fibroepithelioma in 49 Patients

SITE	NUMBER
Back: lumbar-sacral	24
thoracic	8
thoraco-lumbar	2
Chest and Back	1
Inguinal	3
Periumbilical	2
Leg	2
Ear, Presternal, Axilla, Arm, Thumb, Thigh, and Popliteal Fossa	1 each

Premalignant fibroepithelioma has been considered to arise from normal skin except

*From the Department of Pathology, Veterans Administration Hospital, and University of New Mexico School of Medicine, Albuquerque, New Mexico.

for Feinberg's patient[10] who was treated with Fowler's solution and superficial radiotherapy many years earlier for extensive psoriasis. Some time before the development of the multiple premalignant fibroepithelioma on the back and chest, he also received superficial radiotherapy to the trunk as part of the treatment for multiple basal cell carcinomata. Three patients had a previously excised internal carcinoma, a seminoma,[1] a renal cell carcinoma,[1] and a carcinoma of the larynx.[12] There was no mention of the latter having had radiation therapy or of any association of the pre-malignant fibroepithelioma to prior radiation therapy.

A man with a premalignant fibroepithelioma occurring in a site of postoperative radiation therapy for seminoma is reported.

CASE REPORT

On January 29, 1970, this 40-year-old Spanish-American man had an excision of a 15x10x3 mm tan, firm, polypoid cutaneous nodule with a finely lobulated surface from the right groin. There was slight mottled increase of pigmentation and telangiectasia of the skin of the right groin. The nodule was close to a well-healed right inguinal cicatrix. In July, 1955, he underwent right radical orchiectomy for seminoma followed by 2800r through a 10 x 15 cm field to the right groin and 2100r to the abdomen and mediastinum through a 12 x 20 cm field. The routine preoperative laboratory data and a chest x-ray on the present admission were normal. The cut surface of the nodule was gray-white. Microscopically, it consisted of anastomosing, long, thin columns of basaloid cells with foci of peripheral palisading in an abundant cellular fibrous stroma. Some of the basocellular columns arose from the overlying narrow epidermis. (Figs. 1 and 2) The narrow band of adjacent skin had a thin moderately melanin-pigmented epidermis with preservation of rete ridges and skin appendages. There was no remarkable increase of dermal collagen or sclerosis of blood vessel walls. The diagnosis was premalignant fibroepithelioma of the right groin. The patient was discharged the same day. He has remained well during the past year. No additional skin lesions have developed.

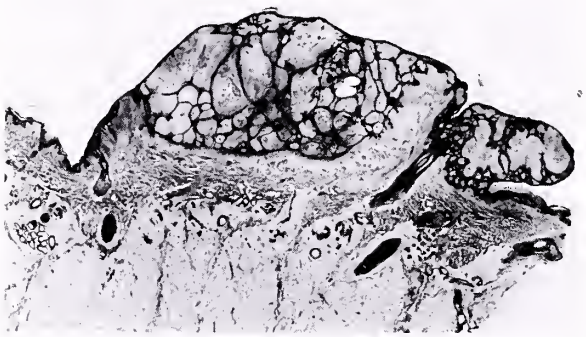

Fig. 1. Cutaneous nodule composed of long, thin anastomosing columns of basaloid cells in fibrous stroma typical of premalignant fibroepithelioma (hematoxylin & eosin x 10).

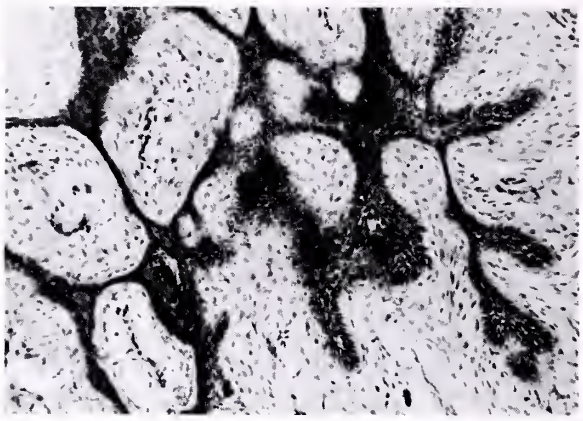

Fig. 2. Higher power showing basaloid columns with peripheral palisading (hematoxylin & eosin x 40).

Comment

The occurrence of skin cancer, most often basal cell carcinoma, following radiation therapy has been well documented. In a series of 368 patients, the mean latent interval was 21 years; but, in a small number, the cutaneous malignancy appeared after three to five years. Seventeen per cent of the patients had only mild cutaneous radiation changes.[13] Although my case of premalignant fibroepithelioma was histopathologically indistinguishable from those previously reported, its development in an irradiated area with mild skin changes is sufficient evidence for classifying it as radiation-induced. The usual postirradiation basal cell carcinoma is microscopically similar to its spontaneously occurring counterpart.

Feinberg's patient with multiple premalignant fibroepitheliomata on the chest and back is the only other known to have been previously treated with potential carcinogenic agents.[10] Although arsenic, as noted by him, may have been a predisposing factor, the effect of the two courses of superficial radiation therapy at a 20-year interval cannot be disregarded. It is perhaps more likely that

their synergism resulted in the development of that patient's lesions.

The occurrence of a visceral carcinoma in four of the 50 patients with premalignant fibroepithelioma is another example of the tendency of a patient with a malignant neoplasm to develop another one. Although no conclusion can be drawn at this time, it is of interest that in three, the carcinoma was of the genitourinary tract.

Summary

A case of radiation-induced premalignant fibroepithelioma of the groin in a 40-year-old man is reported. The patient received 2800r to the right groin 14 years earlier after right orchiectomy for seminoma. Review of the 49 other cases of premalignant fibroepithelioma reveals a predilection for the lumbarsacral region and the 50-79 year age group. There is no sex predilection. Almost 40 per cent had multiple lesions. One patient was previously treated with both Fowler's solution and superficial radiation therapy. Almost all of the tumors were less than 4 cm. Four patients have had a previously excised visceral carcinoma, three of which were of the genitourinary tract. •

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Splenosis as lesion of the stomach

Merlin G. Otteman, MD, James K. Wise, MD, and Stanley W. Henson, Jr., MD, Fort Collins, Colorado

Splenosis secondary to old trauma with autotransplantaion of splenic tissue into the wall of the stomach presented as an intramural fundal lesion.

TRANSPLANTATION of splenic tissue into abnormal locations following injury to the spleen has been reported by many authors. Generally this occurs within the peritoneal cavity. Ahmadi *et al.*[1] reported two cases of splenosis of the thoracic cavity simulating intrathoracic neoplasms. Both of these were associated with injury to the left diaphragm.

Font *et al.*[2] recently described ectopic spleen mimicking an intrinsic fundal lesion of the stomach. This was a normal spleen in an ectopic position and was demonstrated with selective abdominal angiography.

The purpose of this report is to present a case of splenosis secondary to old trauma with autotransplantation of splenic tissue into the wall of the stomach presenting as an intramural fundal lesion.

CASE REPORT

This 35-year-old gravida VII, para VII, Caucasian female underwent splenectomy at age nine secondary to trauma. At that time her spleen was described as crushed and removed in pieces. She did well following the splenectomy.

On September 15, 1970, she had a vaginal hysterectomy because of severe cystic cervicitis. At the time of surgery ectopic splenic tissue was removed from two epiploic tags on the sigmoid colon.

*From the Dept. of Surgery, Poudre Valley Memorial Hospital.

Fig. 1. Upper GI x-ray showing lesser curvature gastric defect.

She was readmitted to the hospital one week later with severe epigastric pain. Oral cholecystogram revealed cholelithiasis. Upper GI revealed a large defect high on the lesser curvature of the stomach associated with a diverticulum (Fig. 1). This was thought to be a leiomyoma. A cholecystectomy, operative cholangiogram and wedge resection of the stomach were done. At the time of surgery ectopic splenic tissue was removed from the hepatic hilum. The gastric lesion was intramural and only when removed and cut was it apparent that this was also splenic tissue (Figs. 2 and 3).

The patient was dismissed on the sixth postoperative day and has had no further problems.

Fig. 2. Gross photo of lesion showing proximity of splenic tissue to gastric wall.

Discussion

Intrinsic lesions of the stomach vary widely as to origin. Mucosal involvement at radiologic study is one criterion for malignancy. Carcinomas tend to ulcerate. Leiomyosarcomas and lymphomas are usually submucosal or intramural lesions.

Benign tumors include leiomyomas, aberrant pancreatic tissue, neurogenic tumors, fibromas and lipomas. These are usually asymptomatic and found incidentally during x-ray examination. Abdominal angiography, scintillation scan and gastroscopy might be helpful in preoperative diagnosis. Visualization of ectopic normal spleen with selective abdominal angiography was possible by Font *et al.*[2] but because of the aberrant origin in our case it is doubtful that angiography would have demonstrated this lesion.

Excision for histologic diagnosis is the only way to differentiate this lesion from other benign tumors.

Fig. 3. Microscopic view of splenic tissue adjacent to gastric wall.

Summary

A patient with traumatic implantation of splenic tissue into the wall of the stomach is reported. It presented as an intramural lesion on x-ray examination of the stomach and required wedge resection with histologic differentiation from other tumors more commonly found in this location. •

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Radiation therapy in selected ovarian cancers

A negative report

J. Howard Hannemann, MD, Denver*

WHILE THE VALUE OF radiotherapy in the management of dysgerminoma, granulosa cell tumor and endometrioid carcinoma of the ovary has been firmly established, its value in the treatment of several more common histologic types of ovarian neoplasms has remained unsettled. Opinion relative to radiotherapy for serous cystadenocarcinoma, mucinous cystadenocarcinoma, and undifferentiated carcinoma, which constitute from 75-80 per cent of all malignant ovarian neoplasms seen in a clinical setting, has ranged from enthusiastic optimism to rank pessimism. The purpose of this communication is to relate the experience of the department of radiotherapy at Denver's Presbyterian Medical Center in the treatment of these three histologic types of ovarian cancers between 1957 and 1970. During that time, 83 patients with these neoplasms were seen, evaluated and subsequently irradiated.

Material

Of the 83 cases under consideration, 54 were serous cystadenocarcinomas, 20 undifferentiated carcinomas and nine mucinous cystadenocarcinomas. Certain tumors, which were originally classified as serous cystadenocarcinomas or undifferentiated neoplasms, under critical review, proved to be endometrioid carcinomas and were consequently excluded from further consideration.

Table 1 shows the age distribution of the 83 cases. Peak incidence was in the sixth and seventh decades (61 per cent of the total), as has been reported in other series of cases. The youngest patient was 30 and the eldest 76 years of age.

TABLE 1.
AGE DISTRIBUTION

30-39	8
40-49	17
50-59	27
60-69	24
70-79	7

Average age 55.2 years

*From the Dept. of Radiotherapy, Presbyterian Medical Center, Denver. Dr. Hannemann's present address is 1068 Shore Rd., Cape Elizabeth, Maine 04107.

Staging was accomplished according to the revised International Clinical Classification which is reproduced as Table 2. All 83 patients had laparotomy for staging and the distribution of these cases within this classification is shown in Table 3. Note from these figures that 68 per cent of all patients had disease which was so far advanced at time of diagnosis that surgical cure was grossly impossible (Stages IIB, III, and IV). This fact accounts, in large part, for the dismal outlook in these disorders.

Technic of Irradiation

The apparatus employed prior to 1967 was a one Mev resonant transformer generator which produced a beam of HVL 3.17mm Pb. After 1967, irradiation was accomplished with 25 Mev photons from a betatron, HVL 12mm Pb. Sixty patients received irradiation to the entire peritoneal cavity. This was generally accomplished through anterior and posterior opposing ports encompassing the pelvis, and followed by similar irradiation through opposing ports encompassing the upper abdomen. Twenty-one patients received irradiation only to the pelvis, again through opposing anterior and

TABLE 2.
CARCINOMA OF THE OVARY
STAGING
REVISED INTERNATIONAL CLINICAL CLASSIFICATION

Stage	I.	The cancer is limited to the ovaries.
	A.	To one ovary.
	B.	To both ovaries.
Stage	II.	The cancer involves one or both ovaries with pelvic extension.
	A.	Primary and secondary lesions are surgically removable.
	B.	Primary and secondary lesions are not surgically removable.
Stage	III.	There are widespread metastases, which are partially removable.
	A.	Abdominal.
	B.	Distant (outside the peritoneal cavity).
Stage	IV.	The tumor is entirely inoperable.
	A.	Proven at laparotomy.
	B.	Unexplored, possibly ovarian carcinoma.

posterior ports and with equipment as outlined above, depending upon the date of treatment. Of these 21 patients, six were clinically Stage I, five were Stage II, nine were Stage III and one was Stage IV. In those patients with Stage III and IV disease, irradiation was either discontinued because of intolerance, progression of disease or death of the patient, and thus was considered incomplete and ineffective. One patient received only upper abdominal irradiation for a symptomatic mass and died prior to the initiation of pelvic irradiation. The single remaining patient was treated only with colloidal gold and received no external beam therapy. This patient is disease free eleven years after treatment.

Doses employed using the million volt apparatus were in the range of 2800-3500 rads to both pelvis and abdomen. Using the betatron, doses of 5000 rads to both areas were administered. Prior to 1966, the irradiation was generally delivered at a rate of less than 600 rads per week (average 450 rads) in five or six equal increments without renal shielding. Thereafter, the dose rate was increased to 800-1000 rads per week in five equal increments utilizing appropriate renal shielding over only the posterior ports. This latter measure was instituted after two patients, one of whom had ovarian dysgerminoma, developed typical radiation nephritis at the high dose rate without shields. Since 1966, the lower dosage level (about 800 rads weekly) was utilized on the one Mev apparatus, the higher level (about 1000 rads weekly) on the betatron.

In addition, twenty-eight of these patients were treated with intra-abdominal radiocolloids to control ascites. Both radiogold in a dose of 150 mCi. and radiophosphorus in doses ranging from 15-30 mCi. were employed. Twelve of these patients had ascites at surgery and hence were treated definitively; sixteen had no ascites at surgery and were treated prophylactically. In the former group, 42 per cent remained free of ascites, while in the latter, 88 per cent did so. These figures compare with 19 per cent and 79 per cent respectively in the control group of 55 patients who received no radiocolloid. While the colloid appeared to be of value in controlling ascites, it also appeared to increase significantly the complication rate in the group of patients treated at the more rapid rates employed since 1966. Fifty per cent (10/20) of those patients treated at the higher dose rate and who also received radiocolloids developed some type of radiation complication, usually radiation enteritis. Of those treated rapidly but without supplemental radiocolloids, only 13 per cent (5/38) developed subsequent complications. There was no apparent correlation between dose employed and complication rate with the use of colloidal chromic phosphate.

TABLE 3.
DISTRIBUTION OF CASES BY STAGE

STAGE I.		13 cases	16%
	A.	10 cases	12%
	B.	3 cases	4%
STAGE II.		19 cases	23%
	A.	13 cases	16%
	B.	6 cases	7%
STAGE III.		44 cases	53%
	A.	40 cases	48%
	B.	4 cases	5%
STAGE IV.	A.	7 cases	8%

Results

Tables 4 and 5 summarize the results of treatment. Survival figures for those treated at low dose rates are essentially five-year survivals. Five-year survival times are not yet available for the rapidly treated group, some of whom may subsequently develop recurrent disease in spite of manifesting no such evidence at this time. Several interesting facts from these tables should be emphasized. Dose rates, greater or less than 600 rads per week played no part in the outcome insofar as the neoplastic disease was concerned, but the higher dose rates, particularly when combined with the administration of radiocolloids, greatly increased the complication rate. Most complications, as noted earlier, were secondary to upper abdominal and not pelvic irradiation. There were 15 cases in which radiation complications occurred. Of these, nine had symptoms of chronic radiation enteritis, five had radiation enteritis with subsequent intestinal obstruction and/or necrosis and one case developed radiation nephritis. Of the five patients who developed intestinal obstruction and/or necrosis, three had previously been treated with intra-abdominal radiocolloids.

All six of the Stage I patients who were treated at the higher dose rate were handled in what was considered to be an "aggressive" manner, in the belief that disease in this stage was most amenable to cure. This aggressive approach included irradiation of both pelvis and upper abdomen in each instance, but resulted in no benefit to three patients (dead), and doubtful benefit to the remaining three,

TABLE 4.
RESULTS OF TREATMENT
STAGES I AND II

Stage	Number of Cases	Dose rate	Survivors to date NED	Survivors to date WD	Dead of disease	Dead of other causes	Radiation complications
I A	1	No external beam therapy	1	...	...	...	...
	5	Less than 600 rads/week	3	...	2	...	...
	4	Greater than 600 rads/week	1	...	...	1+2*	3
I B	1	Less than 600 rads/week	1	...	...	...	...
	2	Greater than 600 rads/week	2	...	...	...	1
II A	4	Less than 600 rads/week	2	...	2	...	...
	9	Greater than 600 rads/week	6	1	2	...	4
II B	2	Less than 600 rads/week	1	...	1	...	...
	4	Greater than 600 rads/week	2	1	1	...	1

*Indicates dead of radiation complications
NED—No evidence disease
WD—With disease

TABLE 5.
RESULTS OF TREATMENT
STAGES III AND IV

Stage	Number of cases	Dose rate	Survivors to date NED	Survivors to date WD	Dead of disease	Dead of other causes	Radiation complications
III A	13	Less than 600 rads/week	...	...	12	1	...
	27	Greater than 600 rads/week	2	2	22	1*	4
III B	0	Less than 600 rads/week	...	...	...	...	...
	4	Greater than 600 rads/week	...	1	3	...	...
IV A	0	Less than 600 rads/week	...	...	...	...	...
	7	Greater than 600 rads/week	...	1	6	...	2

*Indicates dead of radiation complications
NED—No evidence disease
WD—With disease

all of whom now have radiation enteritis 16-30 months after treatment. Two of the deaths were directly attributable to radiation damage of the small bowel and the third resulted from diffuse intravascular coagulation. Two of the three survivors were treated with supplemental intra-abdominal radiocolloid.

Of the 13 Stage II survivors, 11 presently have no evidence of neoplastic disease. Note however, that eight of these 11 originally had Stage IIA disease and ostensibly could represent surgical cures. Two of the three Stage IIB patients survive disease-free, at 17 and 24 months after receiving irradiation to the entire peritoneal cavity at dose rates greater than 600 rads weekly. The third Stage IIB patient survives ten years without disease following irradiation to both pelvis and abdomen at a low dose rate, without supplemental radiocolloid. This phenomenon is difficult to explain by presently understood radiobiologic criteria. Radiation, then, seems to have been of clear benefit only to these three of the 19 patients in Stage II.

Considering only those Stage II patients who were treated at the higher dose rate, we find eight of 13 clinically free of disease. Their disease-free interval ranges from three to 40 months. Note again, however, that six of these eight patients were originally found to have Stage IIA disease (surgically resectable). Three of these six individuals have now developed radiation enteritis following upper abdominal irradiation. Thus only five of 13 Stage II patients treated with doses greater than 600 rads per week are both asymptomatic and free of disease. All five of the radiation complications in Stage II patients were noted following treatment at the rapid dose rate. In addition to the three cases

TABLE 6.
AVERAGE SURVIVAL TIMES

Stage I	25 months
Stage II	29 months
Stage III	9.5 months
Stage IV	4.3 months

noted above, both patients who are presently surviving with clinically active neoplasms have radiation enteritis.

The results in treatment of Stage III disease are even more abysmal. There were no five-year survivors in the group of 11 patients treated at dose rates less than 600 rads per week. Only two patients in the more rapidly treated group are clinically free of disease at present, and the elapsed time since treatment in these instances is so short as to be of little significance (two and 11 months).

Treatment of Stage IV disease is purely palliative and as indicated by our results meets with little definitive success.

Average survival times by stage for those succumbing to their disease are tabulated in Table 6. The difference in survivals between Stage I and Stage II is not statistically significant. Overall five-year survival to date in those cases eligible for analysis is 32 per cent. If, however, consideration is limited to those cases where gross tumor remained postoperatively, that figure falls to seven per cent (1/14). Should all patients presently free of active disease at less than five years remain so for that duration, the overall five-year disease-free salvage would be 25 per cent (21/83), and where gross tumor remained it would be nine per cent (5/57). These discouraging figures hardly seem to justify, regardless of stage of disease, aggressive radiotherapy in which the complication rate is 26 per cent (15/58).

In Stages I and IIA, it would seem wise to limit high dose external beam irradiation to the pelvis. If the upper abdomen is to be treated, smaller doses, 4000-4500 rads, seem appropriate. Routine postoperative radiotherapy for these three types of tumor, when clinically unresectable, might reasonably be abandoned for a fresh approach. Numerous reports in the recent literature document the palliative effect of several chemotherapeutic agents. Toxic side effects are not prohibitive and objective improvement has been described in up to 50 per cent of cases. Sound radiobiologic arguments exist for the treatment of advanced (clinically unresectable) ovarian neoplasms of these three varieties by the postoperative administration of intensive, combination chemotherapy, followed in four to six weeks by supervoltage or megavoltage irradiation to the entire peritoneal cavity. In selected patients, the residual disease would hopefully then be of such small magnitude, due to chemotherapy, as to be controlled on a long-term or perhaps permanent basis by the irradiation. Conceivably this regimen could even be extended to encompass both chemotherapy and radiotherapy on a post biopsy but pre-resection basis. Our present inability to cope successfully with the majority of the "garden varieties" of malignant ovarian neoplasms demands exploration of other therapeutic approaches.

Summary

A 14-year experience with the radiotherapeutic management of 83 patients with selected ovarian neoplasms is reviewed. The histopathologic types considered were serous cystadenocarcinoma, mucinous cystadenocarcinoma and undifferentiated carcinoma. These three types constitute from 75-80 per cent of malignant ovarian neoplasms and should be considered apart from those types commonly recognized as responding to irradiation. Relative incidence and age distribution were similar to other series reported in the literature.

Using the revised International Clinical Classification, 68 per cent of the cases were found to be in Stages IIB, III, and IV, and were surgically unresectable.

Irradiation of different qualities was delivered at varying dose rates. Neither rapid dose rate nor higher quality of irradiation favorably influenced the end results. Twenty-eight patients also received supplemental intra-abdominal radiocolloids which helped to control ascites but also increased the complication rate in the more rapidly treated patients.

Fifteen complications of radiotherapy occurred, resulting in three deaths. The projected overall five-year disease-free survival rate is 25 per cent or less and only nine per cent or less if consideration is limited to those patients whose tumors could not be grossly removed at operation.

It is suggested that routine postoperative radiotherapy be abandoned in patients whose disease has progressed to Stage IIB or beyond. Alternative treatment schedules utilizing intensive chemotherapy prior to irradiation might be explored with benefit.

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Management of chronic active hepatitis

Edward J. Donovan, MD,* Denver, Colorado

CHRONIC ACTIVE HEPATITIS may be defined as an hepatic disorder characterized by clinical, laboratory, and histologic features of both acute and chronic liver disease, with a variable but a relentlessly progressive course. The disease was first described by Waldenstrom in 1950, and since the original description much interest and activity has been aroused. Because of the variable but similar clinical and histologic features of patients with this disease, it has been described in the medical literature under numerous names, which for several years has resulted in confusion and misunderstanding as to its etiology, clinical features, and proper method of management. The many synonyms under which the disease has been described in the medical literature are listed in Table 1.

TABLE 1
SYNONYMS FOR CHRONIC ACTIVE HEPATITIS

1. Active Chronic Hepatitis (Waldenstrom)
2. Chronic Liver Disease of Young Women (Bearn and Kunkel)
3. Lupoid Hepatitis (Mackay)
4. Plasma Cell Hepatitis (Page)
5. Active Juvenile Cirrhosis (Read)
6. Autoimmune Hepatitis (Mackay)
7. Chronic Liver Disease in Young People (Wilcox and Isselbacher)
8. Progressive Hepatitis (Anter-Perkins-Blackburn)
9. Liver Disease in Young Women With Hypergammaglobulinemia (Jones)
10. Subacute Hepatitis (Tisdale)
11. Cryptogenic Cirrhosis (Dible)
12. Subacute Hepatic Necrosis (Klatskin)
13. Chronic Hepatitis in Children (Logan)
14. Chronic Viral Hepatitis (Havens)
15. Posthepatitic Cirrhosis (Gall)
16. Subacute and Chronic Hepatitis (Kelsall)
17. Chronic Active "Lupoid" Hepatitis (Maclachlan.
18. Postnecrotic Cirrhosis in Females with Systemic Manifestations (Bartholomew)

Etiology

The cause of chronic active hepatitis is not known, and whether one or more factors initiate the disease has not been established. Furthermore, the initiating factors are not necessarily those that are responsible for its chronicity and activity. The various factors most prominently considered are continuing viral infection, autoimmune process, and damage by a deranged vascular architecture, bacterial toxins, or collagen disorder.

The evidence against the disease being a continuing viral infection may be summarized as follows: (1) Most human viral diseases are of short duration and confer a lasting immunity; (2) Large-scale surveys of soldiers who suffered from classic acute viral hepatitis reveal very few cases of active chronic hepatitis; (3) The incidence of recognized acute viral hepatitis preceding chronic active hepatitis or "post-necrotic cirrhosis" was little higher than 25 per cent in two recent American surveys; (4) Transmission experiments in viral hepatitis in man indicate loss of infectiousness after the outbreak of jaundice; (5) Failure to isolate a specific infectious agent from the liver or the excreta of patients with chronic active hepatitis.

The evidence available that the disease has an autoimmune etiology is more impressive, but it also has some strong deterring

*The author is Assistant Clinical Professor of Medicine, Department of Medicine, University of Colorado School of Medicine, Denver.

considerations. Mackey has stated the autoimmune evidence as follows: (1) Hypergammaglobulinemia exceeding two Gm. per 100 ml. and an increase in the specific serum immunoglobulin components; (2) Circulating "autoantibodies" such as anti-nuclear antibodies account for L.E. cells, antierythrocyte globulins giving the Coomb's reaction, rheumatoid factor, antibodies to hepatic and mixed tissue antigens, antithyroglobulin antibodies, Wasserman antibodies and others; (3) Lymphoid alterations consisting of pronounced hyperplasia of the lymphoid system with dense accumulation of lymphocytes and plasma cells in liver and various sites in the RES; (4) Response to immunosuppressive and anti-inflammatory agents; (5) Association with other possible autoimmune diseases, such as autoimmune hemolytic anemia, ulcerative colitis, chronic thyroiditis, primary pulmonary hypertension, Sjogrens syndrome, rheumatic fever, rheumatoid arthritis, and scleroderma.

The above evidence should be considered only indirectly suggestive of an autoimmune mechanism in chronic active hepatitis. Hypergammaglobulinemia per se is not specific for chronic active hepatitis. The various circulating "autoantibodies" occasionally noted constitute direct evidence for immunologic processes in these patients, but an argument against the primary etiologic role of circulating antiliver antibodies may be derived from the observation of the transition of chronic active hepatitis into cirrhosis in congenital agammaglobulinemia. Lymphoid alterations, namely plasma cell infiltration of the liver, have not been shown to be pathogenetically related to the production of the disease. It is rather difficult to attribute pathologic activity to the autoantibody-like globulins detected in the serum because their presence is inconstant and their titer bears little relationship to the clinical course of the disease. It should also be noted that liver specific antibodies have not been detected in chronic hepatitis, and the beneficial response of the disease to immunosuppressive and anti-inflammatory agents need not necessarily be explainable on the basis of interfering with antigen-antibody interactions.

The evidence that the disease is secondary to damage by a deranged vascular architecture or bacterial toxins or that it could be a collagen disease is even less impressive than that for viral infection or an autoimmune process as the etiology.

Clinical Features

The clinical features of chronic active hepatitis vary greatly with the kind and severity of the destructive process in the liver. While the earlier papers describing the disease emphasized its occurrence in young female patients, it may occur in either sex and in any age group, although 80 per cent are females and the majority will be in the younger age group. In about one-third of the patients the onset is abrupt with clinical and laboratory features that are indistinguishable from those of acute infectious hepatitis. In about two-thirds of the patients the onset will be insidious with symptoms developing over a period of months. It appears to be a multisystemic disease since almost half the patients have associated conditions apparently unrelated to the liver. As a result, in some patients liver disease may be totally unsuspected, for the extrahepatic manifestations may initially dominate the clinical picture.

It is important to emphasize that 20 per cent of patients will have an anicteric illness. The main clinical features, which vary from patient to patient, may be summarized as follows: (1) none or intermittent; (2) fatigue, fever, anorexia, weight loss; (3) nausea, vomiting, RUQ pain; (4) recurring or persistent jaundice of unusual depth or duration; (5) persistence of hepatitis associated antigen (HAA, Australia Antigen); (6) evidence of multisystem involvement with symptoms referable to the hematopoietic, renal, pulmonary, cardiac, musculoskeletal, gastrointestinal, endocrine, and dermatological systems; (7) prothrombin time less than 60 per cent of normal; (8) hepatomegaly, splenomegaly, spider nevi, ascites, edema, and coma; (9) increase in transaminase, serum gamma globulin, immunoglobulins, and circulating antibodies; positive L.E. smears in 15 per cent of cases; BSP retention and elevated serum bilirubin, and alkaline phosphatase; decreased

serum albumin; (10) persistence of active liver disease more than four to six months following the acute infection.

Acute viral hepatitis is most often a monocyclic disease, but in about one-third of the patients it follows a polycyclic course with mild elevation of the transaminase and a fatigue syndrome. This has been called "transaminitis" and is not chronic active liver disease. The diagnosis of chronic active hepatitis must be made by liver biopsy, and the usefulness of the biopsy depends in large measure upon the experience and interest of the pathologist who interprets it; otherwise patients with mild disease will erroneously be given dangerous treatment. Transaminase values are of more reliability if taken serially, and the serum protein levels should be done by using electrophoresis as other methods have been found unreliable in the presence of jaundice. The presence of a high smooth muscle antibody or positive antinuclear antibody may be of some diagnostic help as they are not found in other chronic liver diseases. Patients who begin with acute viral hepatitis and subsequently develop a persistently positive HAA may often go on to develop chronic hepatitis.

In spite of the above clinical picture the disease may have long periods of quiescence and the patient may not look particularly sick. There is a tendency for the women to be sterile and to a lesser extent the men. As emphasized, the pathologist is the one who must make the diagnosis from the liver biopsy, and this may be difficult if the clinical features are minimal and the pathologist finds his slides complicated by the inherent sampling error found in needle biopsy of the liver or the presence of cirrhosis.

Pathologic Classification

Because of great confusion for many years in the clinical picture and proper application of the steroid and immunosuppressive agents, in 1968 DeGroote and a group of other European pathologists presented a clinical and morphologic classification of this and other related diseases, which is reproduced as Table 2. While this classification has been criticized by some, it has been most helpful to the clinician who must take care of these seriously ill patients. The clinical recognition of chronic persistent hepatitis is important in view of its benign, nonprogressive clinical course, as emphasized by the study of 20 such patients described by Becker. There appears to be no need to give such dangerous therapy as prolonged steroid or immunosuppressive drugs to this form of the disease.

TABLE 2

CLASSIFICATION

A. Chronic Persistent Hepatitis

1. Chronic inflammatory infiltration mostly involving the portal areas.
2. Little or no fibrosis.
3. Piecemeal necrosis is absent or slight.
4. Preservation of the lobular architecture.
5. Preservation of the limiting membrane of the portal area.

B. Chronic Active Hepatitis

1. Chronic inflammatory infiltration involving the portal areas but also extending into the parenchyma.
2. Fibrosis with formation of intralobular septa.
3. Increased piecemeal necrosis and stroma collapse.
4. Disruption of the lobular architecture.
5. Destruction of the limiting membrane of the portal area.

C. Active Chronic "Lupoid" Hepatitis

1. Restricted to a clinical syndrome and not applied to a single pathologic picture.
2. Clinical syndrome is often associated with a highly active chronic aggressive hepatitis.
3. Lobular structure to a large extent destroyed, plasma cells are numerous, and the liver cells are swollen and arranged in gland-like formations or rosettes, and surrounded by condensing or collapsing stroma.
4. Clinical manifestations of skin rash, pleural, pulmonary, cardiac, renal, colon, joint, and thyroid inflammatory processes with hemolytic anemia, positive L.E. preparations, and positive antinuclear factor preparations are common.

The features of active hepatitis may be superimposed upon either of the first two groups. For two reasons the pathologic findings in the active chronic or "lupoid" type cannot be considered as specific. First, they may be found, though usually to a smaller extent, in the absence of the clinical syndrome. Secondly, liver biopsy in chronic active hepatitis may show a variety of pathologic pictures, not all of them chronic aggressive hepatitis, and cirrhosis is often found to be present.

Treatment

The physician who is faced with the treatment of a patient with chronic active hepatitis is confronted with a confusing array of medical literature on the subject. Because no specific etiology for the disease has been determined, so far the various treatments and therapeutic regimes recommended are basically nonspecific and the majority are of questionable long-term benefit. Even the additional use of steroids and immunosuppressive drugs has so far not been able to prolong life beyond three to five years, and their use has resulted in many serious side effects and complications. In addition, biopsy studies have failed to consistently show improvement in the histologic appearance.

The therapeutic program, therefore, can only be directed at the protection of the liver against further damage and aiding such mechanisms as are available for the self repair and regeneration of the damaged liver. Treatment consists of a basic medical regime applicable to all patients with chronic liver disease and supplemented for carefully selected patients with steriods or immunosuppressive drugs or a combination of both. Bed rest must be dictated by the patient's symptoms and clinical course. Strict bed rest is not necessary, and the patient may be permitted to use the bathroom, shower, and eat meals at the table. However, in the clinically symptomatic and ill patient the major portion of the waking day should be spent at bed rest. The author is fully aware of all of the studies which have tended to recommend that the patient with viral hepatitis does not need the strict bed rest previously given. My personal experience gained during the past 20 years, in addition to experiences gained while in charge of a hepatitis ward during World War II, make me reluctant to allow continued free activity in the patient with a sick liver who shows deterioration of his clinical status on activity. Therefore, I prefer to allow the patient activity as indicated by his disease and his individual response to such activity. On this basis the patient's activity program is restricted until improvement has taken place as evidenced by disappearing clinical symptoms, a return of the bilirubin to two Mgm., and the BSP to less than ten per cent in 45 minutes. A mild persisting elevation of the transaminase, which has been dubbed "transaminitis", is not an indication for prolonged bed rest or dangerous therapy.

The dietary regime should be well balanced, calorically adequate, high in carbohydrate and protein, and fat allowed to make the diet palatable. Previous studies have shown the benefits of such a diet in the patient with chronic liver disease, but some patients may need protein restriction in the face of impending or actual hepatic coma. Alcohol should be withheld completely in view of its association with chronic liver disease. Strict avoidance of all other toxic influences must be observed, such as the known effects of electrolyte imbalance, infection, and sedative or narcotic drugs on the liver. The occurrence of complications of chronic active hepatitis such as ascites, bleeding esophageal varices, and hepatic coma require their own individual therapy.

The treatment most widely used in addition to the basic regime has been the use of anti-inflammatory or immunosuppressive agents. Until recently statistical studies have shown no increased survival rate with steroids; once started they may be difficult to stop, and they seem to have little if any effect on the fibrosis in the progressive disease that leads to early cirrhosis. The good effects of the use of steroids have been decreased serum bilirubin and fever, along with increased appetite, feeling of well being, serum albumin and globulin, and liver glycogen and protein content. Long-continued use has resulted in distressing side effects such as moon facies, rapid weight gain, hirsutism, activation of peptic ulcer, water and electrolyte imbalance, psychiatric abnormalities, increased blood

pressure and hydremia, thrombosis, increased septicemia, and severe osteoporosis. In addidition, patients with liver disease will show side effects with relatively small doses of steroids owing to the failure of the diseased liver to inactivate corticosteroids. The decision to use such dangerous long-term therapy in these patients should therefore be made by a seasoned clinician and with the help of liver biopsy so that the patient with chronic persistent hepatitis will not be given such therapy. The dose of steroids previously recommended has been in the range of 40 to 60 Mgms. initially with the dose carefully reduced in small stepwise fashion over a prolonged period of time depending upon the clinical and biochemical response. Severe relapses have been frequently observed when the dosage of these drugs has been reduced too rapidly.

A recently completed six-year controlled study by Sherlock has shown such striking prolongation of life that such treatment must be given to all patients in the active stage of chronic hepatitis. Her dosage was much lower than usually recommended and consisted of 15 Mgm. prednisolone daily, and this was reduced whenever biochemical tests of liver function became normal or when there was evidence of severe side effects of corticosteroids. The two indices in this study which seemed to be of value in assessing the outcome were the serum globulin and albumin, and she recommends that steroids not be discontinued, unless this is made necessary by severe toxic effects, until both the serum albumin and total globulin concentrations are within the normal range. Her controlled study of 54 patients showed at the end of the six years that three out of 22 steroid-treated patients and 15 out of 27 control group patients had died. Appropriate antacid and anticholinergic therapy should be given if the patient is on long-term steroids to minimize their ulcerogenic properties.

Because of their immunosuppressive and possibly antiviral effects, the antimetabolites six-mercaptopurine or azathioprine have been used in chronic active hepatitis or in combination with the steroids. The dangers of toxicity, especially leukopenia, with these drugs is considerable. Mackay found that both prednisolone and azathioprine led to two or three years' suppression of activity; but neither drug proved wholly satisfactory, and he suggested combined treatment, using a small dose of prednisolone (5-10 Mgm. daily) with a smaller dose of azathioprine (50-100 Mgm. daily). Sherlock's study has shown that prednisolone is superior to immunosuppressive drugs and the latter should be reserved for those patients who are resistant to prednisolone, who have developed complications from it, or who have associated conditions, such as diabetes, peptic ulceration, and bone thinning, which prevent its use. This routine as shown by the experiences of Mackay and also Winkelman may well be the most satisfactory course when difficulties arise with prednisolone given on its own.

Summary

The problem of chronic active hepatitis has been discussed. Emphasis has been given to the clinical picture and its variable presentations to the physician. The importance of a needle biopsy of the liver and its proper pathologic interpretation in differentiating chronic aggressive hepatitis from chronic persistent hepatitis is emphasized. A rational method of therapy based on these factors has been presented. •

Vasectomy

*A simplified technic**

Isadore Gersh, MD, Denver, Colorado

A simplified method of vasectomy using a tiny incision and no skin sutures is presented along with practical considerations of indications.

CONTINUING POPULATION GROWTH, changing socio-economic conditions, critical environmental problems, and greater awareness by the laity of potential harmful side effects of The Pill, have resulted in increasing requests for permanent forms of sterilization. The Association for Voluntary Sterilization, Inc.[1] estimates that 750,000 vasectomies and 250,000 tubal ligations were done in the United States in 1970, and that about three million living Americans have had sterilization operations. Recently enacted legislation in Colorado assigns the decision of permanent sterilization of an adult to the individual physician and a requesting and consenting patient.

Many couples who have completed their families and have definitely decided against any more pregnancies, want a permanent form of sterilization. Some of these elect to have tubal closures. Sterilization of the man by vasectomy is a simpler procedure, and less expensive. It does not affect masculinity, sexual potency, or libido in the emotionally normal man. In fact, many couples report enhancement of sexual pleasure because of reduced anxiety due to lessened fear of pregnancy. No known hormonal changes occur after the operations. Ferber et al.[2] suggest that in post-vasectomy patients with unsatisfactory results there was evidence of psychiatric problems in many cases before the vasectomy. When there is marital discord, the possibility of divorce, sexual complaints of a functional nature, or fear of the surgery because of religious tenets, I believe the procedure should not be performed—certainly it should at least be postponed. In addition, patients should consider the possibility of death of children or of the marital partner, and of remarriage before they decide on the operation. It should be obvious that neither is pressuring the other, and the decision should be based on mature, deliberate consideration. Patients are advised that the procedure is intended to be permanent, but that spontaneous reanastomosis is known to occur in rare instances.

If the patient is interested in the possibility of reversal of the operation prior to having it done, I usually advise him to postpone it. Nevertheless, in my opinion, the surgeon should perform vasectomies with the thought that if the patient later decides to have a reversal, that it is mechanically feasible. The likelihood of successfully restoring fertility depends upon several factors, including principally the technic used in the first operation. Reports in the literature[3] suggest success rates with vaso-vasostomies should be as high as 90 per cent, but in my experience approximately 40 per cent of the patients subsequently show good population of sperm in their ejaculates, and only a smaller number prove their renewed fertility potential by ensuing conceptions. It is thought that some men develop immunity to their own sperm following vasectomy. If patients are adequately screened, prior to surgery, regrets and requests for reanastomoses should be rare indeed.

From the Department of Surgery, General Rose Memorial Hospital, Denver. The author gratefully acknowledges the assistance of the Department of Biophotography and Medical Illustration, General Rose Memorial Hospital. Paper presented at the Colorado Medical Society, 101st Annual Session, Colorado Springs, September 23, 1971.

Until about five years ago I frequently refused to do vasectomies either because of the age of the patient or the number of children in their family, but the philosophy in regard to vasectomy has changed.[4] Most applicants for the operation are now well informed about the procedure and its effects. In general, I believe that the man should be more than 30 years of age; that there should be a stable marriage with two or more children, and that there should appear to be no obvious religious conflict about the procedure, nor any manifest psycho-sexual problems. In our office the patient and his wife sign a request for the sterilization, stating that they are fully aware of the nature of the procedure and the consequences.

Vasectomy, as previously mentioned, is a relatively minor procedure, accomplished quickly and effectively, with little operative trauma, minimal postoperative discomfort, and practically no disability. Nevertheless, it should not be undertaken without serious consideration by the patient, his spouse, and the surgeon. Ordinarily the procedure has been performed through an incision about one-half inch in length, and one or more skin sutures are used. The technic we have followed the past several years involves a tiny incision (approximately ¼ inch). No skin sutures are necessary.

Procedure

The patient is instructed to shave the scrotum and underside of the penis and to take a shower the evening before surgery. The next morning he has breakfast, and takes a mild sedative or tranquilizer before leaving home for the out-patient department of the hospital. (For a number of reasons I do not perform vasectomies in my office.) We advise the patient not to drive a car to or from the hospital because of the preoperative sedation.

We prepare the genitalia with Phisohex®* and water, and apply Tr. Zephiran®*. The scrotum is draped. The scrotal vas is identified by palpation high in the scrotum, and is fixed snugly against the scrotal wall with the thumb behind and the index and middle fingers on each side in front (Fig. 1). About 1 ml. of one per cent lidocaine solution is infiltrated into the skin and around the vas. A straight needle (Keith) is then passed through the scrotal wall, under the vas and out through the other side of the taut skin (Fig. 2).

*Winthrop Labs., New York, N.Y.

Fig. 1. The vas deferens is isolated and secured between the thumb (behind) and the index and middle fingers (in front).

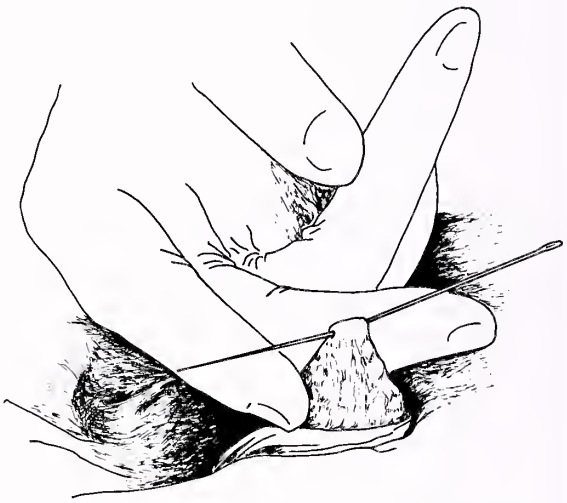

Fig. 2. Following infiltration of local anesthetic, a Keith needle is inserted through the scrotal wall, under the vas, and out through the skin on the other side.

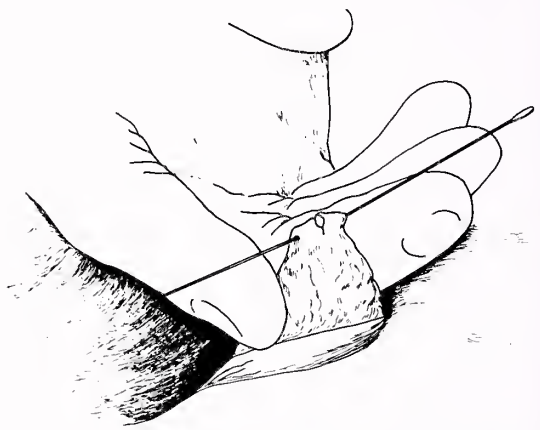

Fig. 3. A tiny incision is made through the scrotal wall to or into the vas.

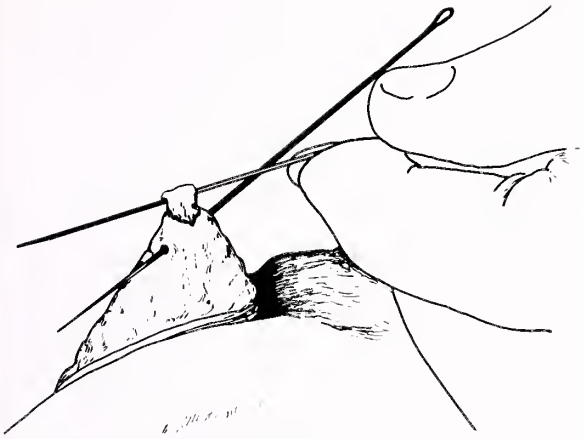

Fig. 4. Pass another needle under the exposed vas and deliver a segment out of the wound.

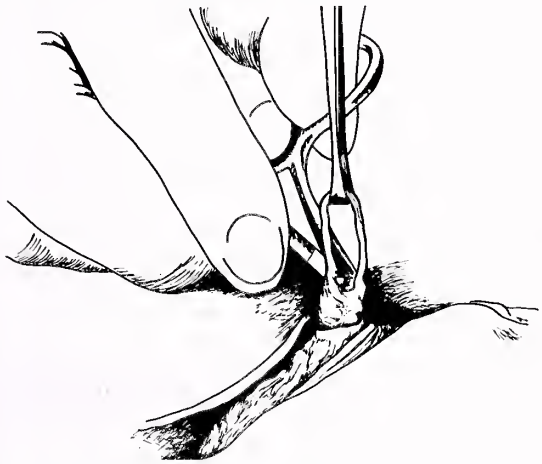

Fig. 5. Apply an Allis forceps around the vas. Ligate or fulgurate all bleeding points.

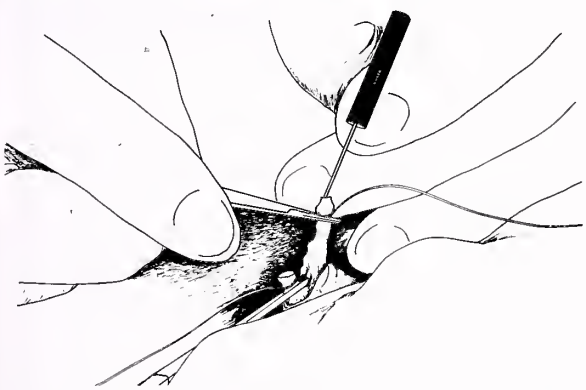

Fig. 6. Fulgurate 2 or 3 mm. of the mucosal ends of the sectioned vas.

A tiny stab incision, about ¼ inch in length, is made through the scrotal wall to or into the vas (Fig. 3). The thin fascia over the vas should be incised; this makes it easier to deliver the vas by itself. Then another needle is passed under the isolated vas which is lifted out of the wound (Fig. 4). An Allis forceps is used to hold up the vas (Fig. 5). If a vessel is adherent to the vas it is separated; it should be fulgurated or ligated if injured. A section of vas about 1 cm. or less is excised between 000 catgut ligatures and mosquito forceps; it is sent for histologic verification.

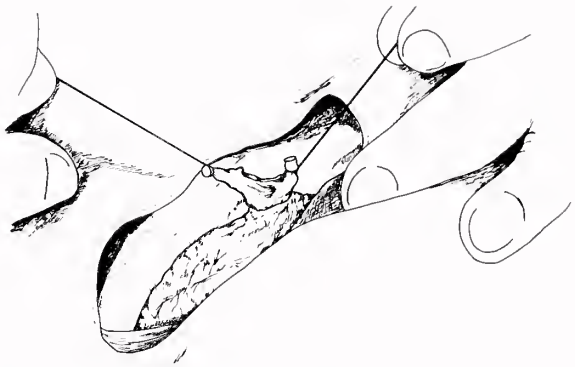

Fig. 7. Check again for any bleeding, and replace the vas into the scrotum.

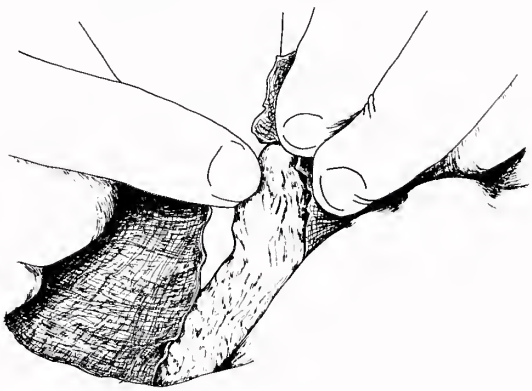

Fig. 8. The small scrotal incision requires no sutures.

The mucosa of the cut ends are fulgurated with a needle electrode inserted a few millimeters into the lumen (Fig. 6), as recommended by Schmidt.[5] If the surgeon prefers to use silk ligatures or to turn back and tie the doubled-over vas, this may be done. The cut ends of the vas are replaced in the scrotum (Fig. 7). No skin suture is necessary (Fig. 8). A small adhesive bandage is applied. The operation is completed bilaterally in 15 to 20 minutes.

The patient is advised to rest for three or four hours at home; he may then drive to his office. He is instructed to call or come to the office, if he has more pain than is relieved by an aspirin tablet. We have had few calls. A scrotal support during the day is advised for about one week, and vigorous exertion

should be avoided for three or four days. It is recommended that there be no sexual intercourse for 10 to 14 days; then contraceptive measures should be employed. The reason for interruption of sexual activity post-operatively is the clinical impression of a higher incidence of sperm granuloma formation if this routine is not followed.

Two months after surgery, the patient submits two separate fresh semen specimens for microscopic examination at intervals of 1 to 2 weeks. If no sperm are observed, the patient is advised that contraceptives may be discontinued. In a few cases, it may be four or five months before the ejaculate is completely free of sperm. We also advise that an ejaculate be examined six and twelve months later. In approximately the last 200 vasectomies, we have had one known spontaneous reanastomosis.

Summary

Vasectomy is an effective minor procedure for voluntary sterilization of men. It is performed rapidly under local anesthesia. It involves minimal discomfort and essentially no disability. The procedure should be done only after deliberate consideration by the patient, his wife, and the physician. A simplified technic is presented which involves a tiny incision and no skin sutures. Failure is rare. One known reanastomosis occurred in approximately 200 procedures. •

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The FBI sign*

Wayne W. Wenzel, MD, Denver, Colorado

An easily performed x-ray view is reviewed and a positive x-ray sign renamed. A helpful diagnostic aid is reviewed and presented as a shortcut in diagnosis of subtle fractures of the knee.

THE PURPOSE OF THIS communication is to revive interest in a previously described radiographic sign[1,2,4,5] which is seldom used but of considerable value. It seems that time and time again the problem of a possible subtle fracture of the knee presents itself. Previously, more often than not in our department, we have needed additional views of the knee to confirm or deny a fracture of a swollen, traumatized knee joint. Additional views mean more pain to a patient who is already uncomfortable.

When one visualizes a fat-blood interface (or FBI sign, if you will) on a crosstable radiograph of the knee or other joints,[5] the diagnosis of fracture extending into the joint is enforced. The crosstable lateral view of the knee is so simple to perform that it has become a routine view in our department in examining the traumatized knee. Fig. 1 demonstrates the appearance of the fat-blood interface (FBI sign) as seen on the crosstable lateral view. The interface is seen because of the differential x-ray absorption of fat and blood, and also because of the tendency of the less dense fat to layer out above the more dense blood. This radiograph obviously would not have presented a diagnostic problem. Fig. 2 illustrates a more difficult diagnostic problem. The arrow in the radiograph on the left points to a subtle fracture which was nearly overlooked in the emergency room at night, but was not missed because of the positive FBI sign seen on the crosstable lateral view. This prompted the physician to take a "second look", and the subtle fracture of the lateral plateau of the tibia was detected.

Discussion

The presence of a lipohemarthrosis of the knee and other joints, when a fracture extending into the joint has occurred, is a fairly constant finding.[3] Joint aspirations in multiple cases have revealed fat concentration of up to 12 per cent in the joint effusions.[5] Although the presence of fat in a joint effusion is not necessarily pathognomonic of fracture extending into the joint, we feel that it is strong suggestive evidence of a fracture even if it is not demonstrated on the radiograph. Holgrem[2] reported twenty-six cases

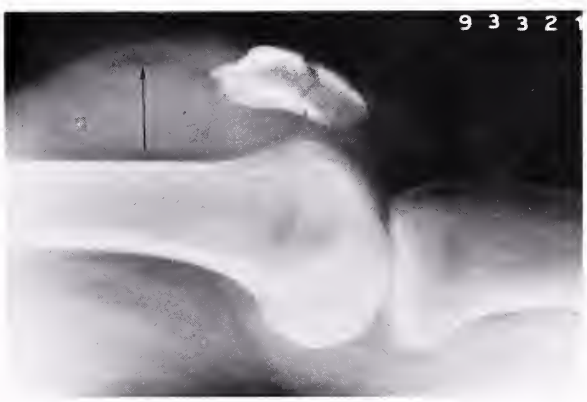

Fig. 1. "The FBI Sign."

Fig. 2. "The FBI Sign."

*From the Department of Radiology, Presbyterian Medical Center, Denver. The author is a third year resident.

of lipohemarthrosis demonstrated radiographically, and in three of these fractures could not be demonstrated. In his and other series, the approximate incidence of radiographically detectable fat-blood interface (FBI sign) is 45-50 per cent. The knee joint, having the large suprapatellar bursa, is by far the easiest place to demonstrate the "FBI sign." The phenomenon has also been noted in the shoulder[5] and conceivably could be seen in any joint space if horizontal x-ray beam was used to examine the joint in question.

Summary

Lipohemarthrosis has been a long noticed but seldom discussed sign of fracture extending into the joint. The purpose in renaming this finding the "FBI sign" is an attempt to make it a "household word" in the diagnostic vocabulary of all physicians involved in examining radiographs of traumatized knees. The crosstable view of the knee is a simple one and should be used more often, if not routinely, in evaluating trauma to the knee. •

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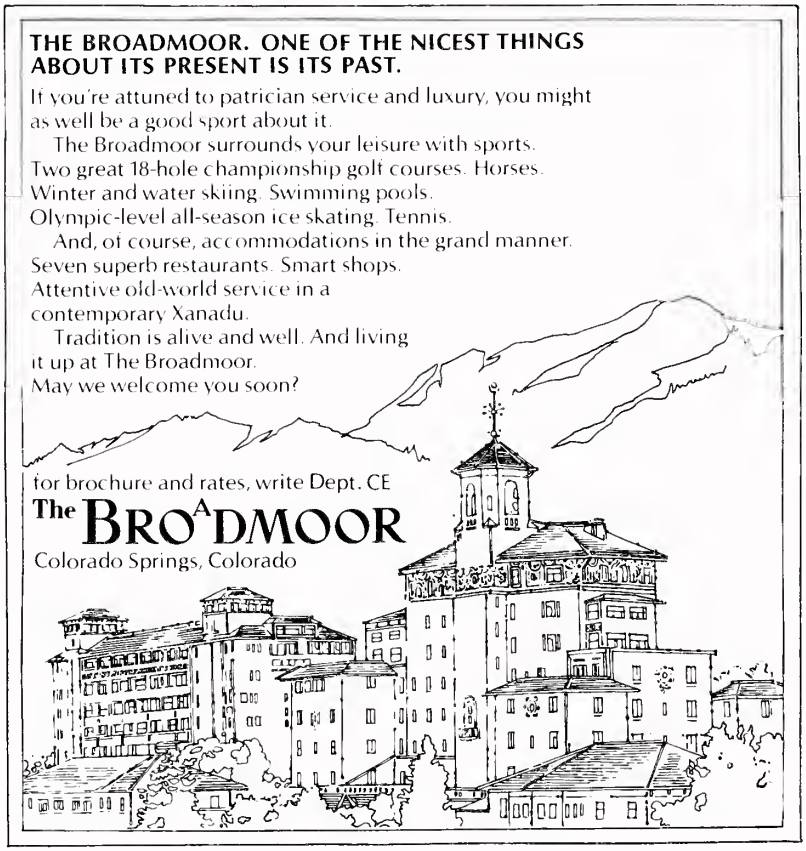

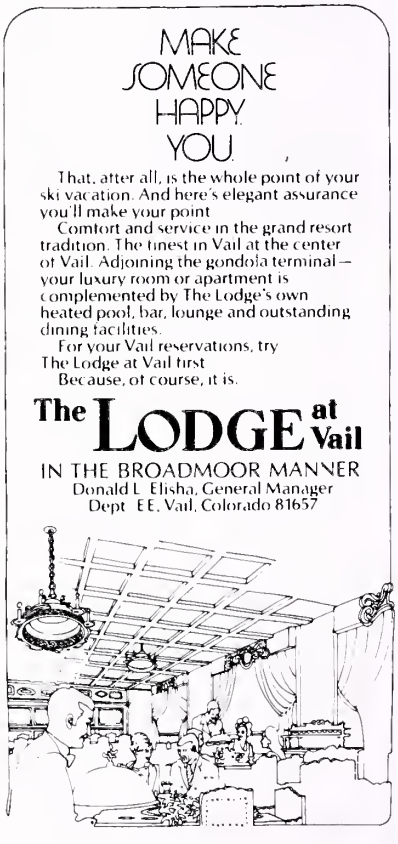

Tax problems of professional corporations

John E. Popham, JD, CLU, Denver, Colorado

Tax problems of professional corporations can be minimized through sound planning, skillful drafting, and good management exercised by medical practitioners and their informed advisors on a continuing basis. Even though it would not be to the advantage of every medical practitioner to incorporate, the professional corporation presently offers the only opportunity for professional people to obtain tax benefits substantially equal to those now available to employees of traditional corporations.

THE FINAL STAGE OF THE professional corporation's evolutionary process will probably be the opposition of the Internal Revenue Service to the professional man's use of the corporation *in form only*—for just the available tax benefits without actually managing it to earn the income and to substantively operate the business.

A prime example of the battle developing over this "in substance as well as in form" corporate-entity problem is the landmark case of *Roubik* v. *Commissioner*, 53 TC 365 (1969). Four radiologists formed a professional corporation validly under State law. Each entered into an employment agreement with the corporation. Each radiologist continued to engage in his individual practice with little change in routine. The stockholders adopted by-laws and elected a board of directors and officers. By resolution the board established the annual compensation of the professional employees. The board adopted a pension plan and authorized procurement of disability, health, and professional liability insurance coverage for the corporation's professional employees. The corporation received the income and paid the expenses including the pension plan contributions. The Tax Court said "the issue is whether petitioners' business was actually *carried on* by the incorporated organization or whether it was carried on outside the organization". Since the professional corporation continued in good standing under State law, it is obvious that the Internal Revenue Service will go behind the "corporate veil", without being bound by State law, in determining whether a corporate entity does in fact exist to *operate* the business.

The question was raised in this case as to whether the *corporation* actually "earned" the income. It is fundamental that income is taxed to the true *earner* thereof. According to the Court, income is either earned by the professional corporation or by the person who actually performs the services by determining who has the "ultimate direction and control over the earning of the compensation". The Tax Court held that the corporate entity did not operate the business and did not earn the income. The professional corporation was disregarded for tax purposes and all income was taxed to the stockholder-employees as individuals.

The underlying income tax principle is that income cannot be assigned. Income is taxable to the individual or business entity that earns it. When a professional corporation is disregarded for tax purposes it is left naked with no income against which to deduct its paid expenses. Furthermore, these expenses cannot be deducted by the stockholder-employees as they were not paid by them. This catastrophic tax result should not be taken lightly.

The low 22 per cent Federal income tax bracket for the first $25,000 of professional corporation net taxable income is a tantalizing incentive for accumulations at the corporate level. However, the disadvantages of such accumulations often outweigh the advantages. The often expressed advantage of having this income taxed at the 22 per cent corporate rate instead of the 50 per cent personal rate is all but meaningless unless the accumulations are invested under skillfully planned, drafted, and funded employee benefit plans.

The accumulation of earnings by the professional corporation presents several related problems. For the mature professional corporation the annual risk of having the prohibitive accumulated earnings tax assessed unexpectedly is not a pleasant thing to contemplate. Thanks to the special statutory credit, the first $100,000 of accumulated earnings are exempt.

It may be argued by the Internal Revenue Service that the additional 70 per cent tax imposed on a personal holding company may be applicable to some professional corporations. Probably the greatest risk falls upon the one-man professional corporation. This law was originally intended to stop the use of corporations by entertainers to avoid the high individual income tax rates.

The collapsible corporation rules were originally aimed at corporations that were attempting to convert profit on inventory and stock-in-trade into capital gain. The problem for professional corporations arises from transferring accounts receivable from either the sole proprietorship or partnership to the corporation. If the accounts are transferred to the professional corporation, payments thereon should be considered ordinary income to the corporation and not capitalized. Another way to handle accounts receivable is to not transfer them, but to keep collecting them as income to the sole proprietor or partnership. Proper planning can work out the details of keeping a partnership and professional corporation both active for the necessary time. Such dual business entities can also be planned to avoid "doubling up" on income of non-salaried solo practitioners and partners when changing either to or back from the employee status of a professional corporation.

Not to be taken lightly is the fact that accumulations are also likely to produce personal and corporate cash flow problems at the time when stockholders are either added to or withdrawn from the professional corporation. If the accumulations have reached a large amount, it may place an unnecessary burden on new stockholders and thus act as a deterrent to attracting young talented associates as stockholders. Since the right to income from stock ownership is often disportionate to salaries, the likelihood of interpersonal conflict and unhappiness is enhanced by large corporate accumulations.

The wise solution to these problems of earnings accumulations, the personal holding company tax, and the collapsible corporation penalties is obvious. The tantalizing incentive to accumulate corporate earnings at a 22 per cent Federal income tax rate should be utilized only to use these corporate dollars to provide one or more of the following benefits and then only when it is a wise investment and skillfully planned by qualified advisors to accomplish the desired objective: (1) group term life insurance up to $50,000 maximum; (2) accident, health, and sickness insurance plans using tax-deductible dollars; (3) medical and dental reimbursement plans; (4) sick pay, salary continuation, or disability income plans funded with insurance using the tax-deductible dollar; (5) key-man life insurance to protect the corporation against loss from death of a key man; (6) life insurance to fund a deferred compensation agreement for benefit of selected employees or their heirs and to protect the corporation against loss from the employee's death while providing the corporation with the tax-free creation of capital; (7) stock redemption agreement funded by life and disability income insurance covering withdrawal of a stockholder due to death, disability, retirement, resignation, and discharge for cause set forth in the corporate by-laws or employment contract; (8) split-funding of life insurance for selected employees financed with lower-taxed corporate dollars; (9) qualified pension and profit-sharing plans with tax-deductible contributions; and (10) $5,000 employee death benefit which is tax-deductible to the corporation without being taxed as income to the employee's heirs.

The reasonableness of officer-stockholder compensation is part of the corporate-entity problem and most likely would be included in the same Internal Revenue Service attack. The practitioner may wish to attribute all his success to his personal talents, but the Internal Revenue Service auditor may decide that a significant part of those earnings may be from property such as libraries, laboratories, and X-ray equipment; from the services of others such as nurses, technicians, clerical employees, and, in the future, physician assistants; from intangible values inherent in his practice, perhaps purchased or inherited from others such as contract retainers, location, firm name, even goodwill; and from economic factors such as national shortage of doctors and population explosion.

The natural tendency is to rely heavily on the simplistic arguments that an officer-stockholder's salary is reasonable if his professional income prior to incorporation was comparable or that any number of doctors in private practice earn as much or more. These arguments break down when it is realized that the true origin of the income produced by the unincorporated practice has never before been a tax issue. When this same income is divided between the doctors and a separate tax entity known as a professional corporation, the tax issue is clearly drawn. The 1969 Internal Revenue Service Release said that the Internal Revenue Service was conceding that organizations of doctors organized under State law will, *generally* though not absolutely, be treated as corporations for tax purposes; but this release also said "obviously, however, the government must reserve the right to conclude differently in any case that reflects special circumstances".

A leading case on reasonableness of officer-stockholder compensation is *Klamath Medical Service Bureau*, 261 F.2d 842. Each doctor received an initial fee equal to 50 per cent of the fee charged the patient by the corporation. In addition, the portion of the corporation's *net* income attributed to total fees billed by the physicians was paid to the doctors on a nonprorata basis. The latter payments were held to be disguised dividends and thus taxed both to the corporation as ordinary income and to the officer-stockholders as dividends. A distinguishing feature was that the corporation operated a hospital and thus had capital at work as well as income from personal services. It is clear that all payments made to an officer-stockholder or for his benefit, including a qualified retirement plan, will be aggregated when determining the reasonableness of the overall compensation paid to him.

This compensation problem can be minimized by operating the professional corporation solely for the practice of medicine through licensed doctors. This can be accomplished by shielding the professional corporation against return-on-capital income by having the stock issued for as low a price as possible and by having the professional corporation lease all equipment, furniture, and office space from the individual physicians, partnership, or another corporation.

A "dividend requirement" pattern seems to be developing dangerously. The two leading cases are *McCandless Tile Service*, 422 F.2d 1336; and *Barton-Gillet Company*, 29 TCM 679. The "enforced dividend" can result from either an unreasonable compensation for an officer-stockholder or no recognized return-on-invested capital. A dividend payment is the strongest corporate characteristic available so it could be used to help establish the corporate entity for tax purposes and at the same time alleviate the reasonable compensation problem which is related to the required dividend issue. Obviously, stock issued at a low price is an advantage if a dividend is declared. The double income tax on a 15 per cent dividend paid each year on minimum invested capital could be a small price to pay to frustrate a direct attack by the Internal Revenue Service on the corporate entity, particularly for the one-man professional corporation.

The problems of getting out of a professional corporation should be considered when it is formed. Much has been written about getting into a professional corporation, particularly the tax advantages, but the personal considerations and the problems to be faced in getting out of a professional corporation have been virtually ignored. A covenant not to compete after termination of employment is a "getting out" provision which is worthy

of consideration. The disposition of records and files upon termination of the professional corporation should be covered by the by-laws and employment agreements. The authoritative right of the board of directors to discharge any corporate officer or employee, even the former senior partner of a group practice, should be studied and dealt with.

From the point of view of establishing the one-man professional corporation as a separate entity for Federal income tax purposes and to satisfy the requirements of State professional corporation laws, it would be beneficial to have a funded buy-sell agreement between two complementary one-man professional corporations. Such an arrangement would provide continuity of existence, permit the ethical winding up of the affairs of the terminating corporation, provide continuity of services to patients, preserve value of medical records for patients, and provide a means for the family of the deceased solo practitioner to realize some value from his practice in addition to just collecting accounts receivable and selling equipment and possibly an office building at "knock down" prices.

With these and other problems in mind, it is submitted that in planning for the withdrawal of stockholders or the ultimate termination of the corporation, these problems can be best resolved by the following procedures: (1) maximizing salaries; (2) increasing real compensation by adopting qualified retirement plans; (3) making use of corporate fringe benefits to provide employee protection against death, illness, and disability; (4) utilizing salary continuation or deferred compensation agreements; (5) most importantly, keeping the purchase price of the stock as low as possible; (6) limiting the income to return from personal services of licensed doctors; and (7) eliminating income as a return-on-capital by leasing all equipment, furniture, and office space.

The most important factor for the operation of a professional corporation and in deciding whether to incorporate, either a solo or group practice, is yet to be determined by the Treasury Department and Congress. The Treasury in 1970 indicated that legislation would be proposed to Congress in 1971 offering professional people tax benefits substantially equal to those available to corporate employees without the necessity of incorporation. In early 1971 the Treasury shifted its legislative priorities to postpone this new legislation for professionals. The Treasury and Congress will surely take action in this area in the near future, probably as the national economy turns stronger. The establishment by Congress of a unified retirement plan offering professional people, including doctors practicing medicine as a sole proprietor, partner, professional corporation employee or hospital employee, tax benefits fully equal to those available to the employees of the traditional corporation just may dim the enthusiasm for professional corporations.

Conclusion

Professional corporations should be established with an informed look at all problems. It is imperative that each professional employee of the professional corporation understands how the corporation is to operate and how it will be different from the professional partnership or sole proprietorship that he has known in the past. There must be a significant change in the substantive operation of the medical practice as well as mere adoption of the corporate form. Each doctor must accept, think, and act the new role of corporate employee.

In the future more emphasis should be placed upon the business and management advantages of a corporate operation and less on the tax advantages. These business and management advantages of a corporate operation emulate from a functional board of directors, president, secretary, treasurer, formal employment contracts, and organizational by-laws. •

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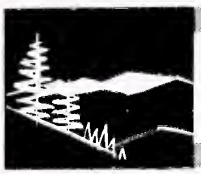

COLORADO

One Million Dollar Grant Awarded

The Colorado-Wyoming Regional Medical Program (CWRMP) has received a renewal grant of over $1 million in federal funds for support of 1972 health care activities in the two-state region. The grant award was based on the 1972 program design and funding request approved last fall by CWRMP's 40-member Regional Advisory Group and submitted to the Department of Health, Education and Welfare for funding. The funds for the Denver-based agency will be channeled into programs and activities designed to improve the quality, quantity, and accessibility of health care services in Colorado and Wyoming.

The Colorado-Wyoming Regional Medical Program is one of 56 similar programs across the nation authorized by Congress in 1965 to aid the nation's health resources in making the best possible medical care available to the American people. Established in 1967 in cooperation with the University of Colorado Medical Center, CWRMP has for the past five years been working with regional health professionals and institutions to help make the organization and delivery of health care services in the two states more efficient.

Doctor Robert C. Jones, CWRMP deputy director, said that the grant will permit funding and implementation of eight of the nine program components originally proposed for 1972 and will enable the CWRMP central staff to develop future plans and programs. The one proposed activity which will not be funded immediately, a pediatric renal hemodialysis center to be located at the University of Colorado Medical Center, may be implemented at a future date with supplemental funds, according to Dr. Jones. The central staff will continue to study and identify specific problem areas and health care needs in the two-state region, which will enable the agency to support various pilot projects that have a real potential for improving the health care picture in the region. Several of the pilot projects are designed to determine the value of recent developments in health care technology to this region.

Among the activities currently being supported by the CWRMP central staff are a system to provide computer-assisted interpretation of electrocardiograms for remote community hospitals and various training programs to produce new types of health manpower to meet problems of physician shortage and maldistribution.

The following program components, as well as the central staff, will be funded in 1972:

(1) Radiation Therapy and Nuclear Medicine Technology Training Programs are two-year programs based at Community College of Denver to train technologists in the two paramedical specialties.

(2) Pediatric Oncology Center, based at Children's Hospital in Denver, provides diagnosis and treatment for children with all forms of cancer and offers advanced training for physicians.

(3) Advanced Cancer Nursing is a training program conducted by the staff of the American Medical Center at Denver to train nurses in the specialized technics of caring for patients with advanced cancer.

(4) Radiation Therapy Planning by Time-Sharing Computer enables smaller hospitals throughout Colorado and Wyoming to utilize a central computer system in Denver for determining dose distributions for radiation therapy patients.

(5) Physician Assistant Program for Wyoming serves as a mechanism for recruiting, placing, and preceptor training of qualified physician assistants in identified areas of need in Wyoming.

(6) Expanded Role Training for Nurses is a program in cooperation with the University of Colorado School of Nursing to increase the skills of community nurses through short-term training programs, thus enabling them to provide broader health care for ambulatory adults in cooperation with physicians in their communities.

(7) Clinical Laboratory Improvement System for Wyoming enables the Colorado State Health Department to provide proficiency testing services and consultations to hospital laboratories in Wyoming.

(8) Nurse Practitioners and Problem-Oriented Records operates an intensive training program in cooperation with the University of Colorado Schools of Medicine and Nursing to develop skilled nurse practitioners who will function independently to deliver defined levels of emergent, chronic, and preventive care.

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Program emphasis during 1972 and future years will be in the areas of distribution and utilization of health manpower, continuing professional education, health information for the public with emphasis on prevention and early detection of disease, utilization and development of health care services, and improved systems of primary health care delivery.

Although the program is federally funded, CWRMP activities are determined by the 40-member Regional Advisory Group, comprised of leading health professionals and lay citizens from Colorado and Wyoming. Dr. Thomas A. Nicholas, a Buffalo, Wyoming physician, is advisory group chairman, and Thomas K. Younge, a Grand Junction, Colorado attorney, serves as vice chairman.

Medical Specialty College Admits Area Internists

Three Colorado physicians, Dr. Richard Hamilton, of Denver, Dr. Spencer B. King III, also of Denver, and Dr. Charles H. Lesage, Jr., of Lakewood, are among a group of 242 physicians in the United States and Canada who have been admitted as members of the American College of Physicians.

MONTANA

HELP! HELP! COPY FOR MONTANA'S SPECIAL ISSUE

Montana

The 1972 issue of the *Rocky Mountain Medical Journal* featuring Montana authors is to be the May number. The editor of our Montana section, Dr. Gerald Diettert of Missoula, has just informed us that he has not yet received any copy from the membership. He states, "I am sure that the physicians of Montana have talents sufficient to provide the needed material and produce an issue which is a credit to us."

Dr. Diettert is certainly correct, the talent and experience are there in Montana; all we need to do is inspire the necessary enthusiasm to work it up.

Please look over your interesting cases of the past year or two, and start working upon that paper which you have been planning for your colleagues. Also, we would welcome signed editorials. This would be, hopefully, on non-scientific subjects. This is an election year and thus the political situation calls for action. Then there are the socio-economic aspects of the practice of medicine—to name but a few.

Please give Dr. Diettert your prompt attention and get the copy in to him in the immediate future. He should have it at least by March 1, 1972. While preparing your material, please refer to the Publication Rules and Suggestions to Authors in the front pages of your Directory. It will offer a great deal of effective assistance in turning out copy that will be a credit to the authors and to the Montana Medical Association.

WYOMING

Three Wyoming Physicians Receive Honors

Three Gillette, Wyoming physicians recently received national honors. Dr. J. E. Hoadley was one of 614 physicians from throughout the world who was inducted as a Fellow of the International College of Surgeons at its convention in early December.

Another Gillette general practitioner, Dr. James W. Sampson, was also honored at the College's meeting in Panama City, Panama. A Fellow of the College since 1950, Dr. Sampson is regent for the state of Wyoming and a member of the International Board of Governors for the 1971-72 year. Noted for his efforts to initiate postgraduate medical education courses for doctors in rural areas, Dr. Sampson is co-chairman of the United States section's Postgraduate Education Committee. He wrote the article, "ICS Men Bring Knowledge to the Rural West", which appeared in the October 1971 issue of the College's *International Surgery Bulletin*. Primarily about the effect of a series of rural medical seminars which started in Gillette in 1970, Dr. Sampson's article explained the desperate need for doctors in many rural areas to receive up-to-date postgraduate training. The College, through its rural postgraduate education committee, is seeking to fill in some of the gaps in communication plaguing outlying areas; and to implement the seminar program in Wyoming, Dr. Sampson has recruited nationally-recognized specialists in various medical fields to lead the short courses for doctors in relatively isolated areas.

Dr. Ellison F. White, also from Gillette, was elected to the Wisdom Hall of Fame and also received the Wisdom Award of Honor. Created by the Wisdom Society for the Advancement of Knowledge, Learning and Research in Education, the Wisdom Hall of Fame and the Award of Honor recognize outstanding accomplishments by government leaders, clergymen, physicians, lawyers, scientists, artists, financiers, and other professional people. Dr. White believes that this honor came as a result of his work in the early problems of tuberculosis. His research led to the development of a method for determining the effectiveness of various drugs against the TB germ. This work drastically shortened the time and procedures needed to test TB drugs and their results. His methods are the basis for much of today's TB research.

A medical potpourri

Compiled by Andrew M. Babey, MD, Las Cruces, New Mexico

1. "Your children are not your children.
They are the sons and daughters of Life's longing for itself.
They come through you but not from you,
And though they are with you yet they belong not to you.
You may give them your love but not your thoughts,
For they have their own thoughts.
You may house their bodies but not their souls,
For their souls dwell in the house of tomorrow, which you cannot visit, not even in your dreams.
You may strive to be like them, but seek not to make them like you.
For life goes not backward nor tarries with yesterday."

GIBRAN, Kahlil, from *The Prophet*, November 1966, Alfred A. Knopf, p. 17.

2. "Whatever its sins, the American medical establishment is not responsible for hunger in this country, for the automobiles that kill 50,000 or more people here annually, for the drug overdoses that claim thousands of young lives, or for the millions of Americans who court heart disease and lung cancer by overeating, exercising little or not at all, and smoking a pack or more of cigarettes daily. If a person chooses to eat or smoke his way to death despite his doctor's warning, why blame the doctor?" SCHWARTZ, Harry, "Health Care in America: A Heretical Diagnosis", *Saturday Review*, August 14, 1971, p. 15.

3. "There are, of course, inefficiencies in the existing medical care mechanism that add to costs, but it is a delusion to think that the physically ill or the emotionally disturbed can be handled satisfactorily and humanely in ways that will compare in efficiency and cost effectiveness with the assembly-line techniques Detroit uses to build automobiles. Certainly the nation does not want the high percentage of error and neglect in its health care that car buyers find in their new vehicles." Ibid. p. 16.

4. "A human being is not a machine that can be fixed by any garage mechanic when something goes wrong. Yet, that philosophy is the implicit premise of much current discussion of medical reorganization." Ibid. p. 55.

5. "People had virtually unlimited scope for regarding themselves as being sick, the report says, at the same time as they and their doctors had become able, through technological progress, to discover an increasing range of physical or biochemical abnormalities in the statistical sense. It had been said that nowadays a healthy person was one who had not been properly examined." ROPER, John, Medical Reporter, *The Times* (London), June 23, 1971, p. 4.

6. "None of my juniors seems to be worried as I am, that the contribution of laboratory science to medicine has virtually come to an end. The biomedical sciences all continue to provide fascinating employment for those active in research, and sometimes enthralling reading for those like me who are no longer at the bench but can still appreciate a fine piece of work. But the detail of the RNA phage's chemical structure, the place of cyclostomes in the evolution of immunity or the production of antibody in test-tubes are typical of today's topics in biological research. Almost none of modern basic research in the medical sciences has any direct or indirect bearing on the prevention of disease or on the improvement of the medical care." BURNET, Macfarland, Sir, *Genes, Dreams and Realities*, p. 218, Aylesbury Medical and Technical Publishing. 1971.

7. "When hepatic abscess is believed to be amebic, a diagnosis can often be supported by the indirect hemagglutination, gel diffusion, or complement fixation test. If one of these tests is negative, an hepatic abscess can usually be excluded, since false negative results occur with fewer than five per cent of each of these tests. The indirect hemagglutination test is the most sensitive test and it is positive in about 85 per cent of active intestinal

infections. The test may, however, continue to give positive reactions for as long as two years after cure. The gel diffusion and complement fixation tests correlate better with active disease since a positive reaction usually persists for no more than six months after cure." *Medical Letter*, Vol. 13, No. 4, p. 16, February 19, 1971.

8. Absolute Indications for Bone Marrow Examinations

1. Multiple myeloma and primary macroglobulinemic syndromes
2. Acute leukemia (all types) and myeloproliferative states including subacute and chronic myelogenous leukemia, some atypical cases of chronic lymphatic leukemia
3. Lipid storage disease such as Gaucher's disease
4. Radiologic or other evidence of bone involvement by tumor but no primary site found
5. Certain cases of lymphoma
6. Cystinosis

Laboratory Diagnosis, BENNINGTON, James L., FOUTY, Robert A., HOUGIE, Cecil, The Macmillan Company, 1970, p. 651.

9. Generally Good Indications for Bone Marrow Examination

1. Anemias of uncertain or obscure origin and in untreated megaloblastic anemias
2. To determine effect of therapy on iron stores in conditions in which iron overloading has occurred
3. Granulomatous diseases
4. Hypoplastic and aplastic anemias
5. Idiopathic thrombocytopenic purpura
6. Certain fungal conditions (e.g., histoplasmosis)

Ibid. p. 651.

10. Poor Indications for Bone Marrow Examination

1. Iron-deficiency anemia (to determine merely state of iron stores)
2. Anemia caused by chronic renal disease
3. Routinely in all cases of lymphoma
4. Metastatic carcinoma, primary site known
5. For culture purposes
6. Autoimmune hemolytic anemias (or congenital hemolytic anemia) unless marrow failure suspected
7. Hemoglobinopathies, such as sickle-cell anemia and thalassemia
8. Alcoholism

Ibid. p. 653.

11. "In this author's experience, the serum albumin, when properly done, has been found to be the most sensitive index of general physical well-being. In healthy adults, it will drop 0.5 to 0.8 gm% with enforced bed rest for five to seven days. It is an excellent index of general nutrition, being consistently below 3.9 gm% in ambulatory outpatients of all age groups in a county hospital population in contrast to a similar population in private practice where values were generally above 4.0 gm%. It is also an excellent means of following therapeutic response in acute and chronic disease. The serum albumin will drop 0.5 to 1.5 gm% following gastrointestinal surgery and return to normal in three to five days." Ibid. p. 155.

12. "Acute leukaemia in childhood is not common and most paediatricians and haematologists do not acquire a wide experience of the disease. In the light of this investigation it would seem desirable, from the patient's point of view, that children with acute leukaemia should be referred, where this is feasible, to a centre specializing in the treatment of the disease. As there is also some evidence that even a short course of inadequate therapy may be deleterious they should be referred to such a centre as soon as possible." Report to the Medical Research Council, *British Medical Journal*, October 2, 1971, p. 9.

13. "But advances in all branches of medicine have now produced a situation in which no doctor can reasonably claim to be fully informed and highly proficient in more than one or two specialised areas. This is not to imply that all patients with albuminuria should be referred to a renal physician, or those with hypertension to a cardiologist, but in the care of patients with a severe form of a disease of protean character there can be no loss of prestige in soliciting specialised skills." "Intensive Care in Obstetrics", *Lancet*, October 23, 1971, p. 913.

14. "If a new test is not an improvement, then it should be discarded. If it *is* an improvement, then an older test can be withdrawn. All too often, however, the tendency is to add indiscriminately to a laboratory's repetoire, on the assumption that 'more' means 'better'." "Too many Tests?" SALKIE, M. L., *Lancet*, October 23, 1971, p. 916.

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OBITUARIES

Colorado

Franklin Gessford Ebaugh, MD, a nationally recognized psychiatric educator, died Tuesday, January 4, 1972, at his home in Denver. The doctor was born on May 14, 1895, in Reisterstown, Maryland, where he was married to the former Dorothy Reese in 1921.

Doctor Ebaugh was educated at Johns Hopkins University, where he received his MD degree in 1919. He also interned at Johns Hopkins and took postgraduate training under Adolph Meyer at New Jersey State Hospital and Philadelphia General Hospital from 1921 to 1924.

In December 1924, at the age of 29, Doctor Ebaugh came to Denver to become professor of psychiatry and director of the newly established psychiatric hospital, a part of Colorado General Hospital and the fifth of its kind in the United States. During World War II Doctor Ebaugh, who held the rank of colonel in the U. S. Army Medical Corps, served as psychiatric consultant to the armed forces.

Although Doctor Ebaugh was not the original founder of Mt. Airy Hospital, he, along with 20 other psychiatrists, founded the nonprofit Mt. Airy Foundation in 1951, which has continued since that time. In 1971 the Foundation presented him with a citation for "his work in psychiatry in the Rocky Mountain region and for his leadership in relating psychiatry to medical education".

Doctor Ebaugh attained a national reputation as a psychiatric educator and practitioner through the more than 200 articles and four books that he published. He took particular interest in the psycho-dynamics of aging and felt that in its youth-centeredness, American culture often disregards the elderly as a human resource.

Doctor Ebaugh was extremely active in the organized affairs of his profession. A member of the American Medical Association, he served as the chairman of its Section of Nervous and Mental Diseases in 1932, chairman of its Subcommittee on Clinical Psychiatry from 1938 to 1942, and a member of its Residency Review Committee. Doctor Ebaugh also belonged to his local medical organizations, the Colorado Medical Society and the Denver Medical Society, and was active in regional medical affairs. In 1960 he was the chairman of the Colorado Governor's Ad Hoc Committee on Mental Health. On his seventieth birthday in 1965, distinguished psychiatrists from across the country gathered in Denver to attend a psychiatric seminar at which he was honored. In 1967 Doctor Ebaugh received the Certificate of Service, the highest honor of the Colorado Medical Society, for his "unstinting service to the profession".

Doctor Ebaugh was also very active in the organizations of his specialty on both a national and local level. He belonged to the American Neurological Association, of which he was a senior fellow; the Central Neuropsychiatric Association for which he served a presidential term in 1930; and the Colorado Neuropsychiatric Society of which he was president in 1929 and again in 1946. He was also a life fellow of the American Psychiatric Association, for which he served a term as vice president and was awarded its Distinguished Service Award in 1966. In 1943 he was president of the Association of Research on Nervous and Mental Diseases. He founded the American Board of Psychiatry and Neurology and served as its director from 1934 to 1942.

Doctor Ebaugh was a former editor of the *American Journal* and the *American Journal of Psychiatry* and served as associate editor for *Diseases of the Nervous System.*

Doctor Ebaugh's survivors include his widow; three sons, Dr. Franklin G. Ebaugh, Jr., of Salt Lake City, David C. Ebaugh of Denver, and Donald R. Ebaugh of Pueblo; a daughter, Mrs. Nancy E. Allen of Tulsa, Oklahoma; a sister, Minnie Bell Ebaugh of Columbus, Ohio; and 14 grandchildren.

George D. Ellis, MD, died at Saint Luke's Hospital in Denver on December 23, 1971. Born in Anderson, Indiana, on July 27, 1890, Doctor Ellis was graduated from Purdue University in 1912 with a degree in electrical engineering. He worked as an electrical engineer for four years when ill health caused him to move to Colorado. After recovering, he went to work for the United States Forest Service as a surveyor. One of his surveys led to the construction of Wolf Creek Pass in southwestern Colorado.

At the age of 37, Doctor Ellis entered the University of Colorado School of Medicine and was graduated five years later with honors. He spent a year as an intern and two years as a surgical resident at Colorado General Hospital. Later, he served a preceptorship under Dr. George Packard. After completion of his training, Doctor Ellis went into private practice while also serving as chief surgeon for the Rio Grande Railroad as well as the Denver Police and Fire Departments. He devoted much of his time to graduate teaching and charity surgery. For years he served as Chief of Surgery at the Denver General Hospital but had been semi-retired since 1968.

Doctor Ellis was a member of the Denver Medical Society, the Colorado Medical Society, the American Medical Association, the American Board of Medical Examiners, and was an active Fellow in the American College of Surgeons.

In 1935 Doctor Ellis was married to the former Florence Denny Morrison, who died in May 1966. He is survived by a stepson, Robert Morrison of Granada Hills, California; a brother, Dr. Seth Ellis of Anderson, Indiana; and four grandchildren.

Leonard N. Myers, MD, who practiced medicine in Cheyenne Wells, Colorado, for 36 years, died December 30, 1971, in Denver at the age of 70. Doctor Myers was born in Carey, Ohio, on March 3, 1901. On November 17, 1924, he was married to the former Leona Richenbach, who died in 1953.

Doctor Myers, who was graduated from Northwestern University, held membership in the American Medical Association and the American Association of Railway Surgeons, played an active role in the affairs of the Colorado Medical Society, and served as a president of the Eastern Colorado Medical Society.

Doctor Myers moved to Denver from Cheyenne Wells after his retirement in 1966. He is survived by a son, Leonard L. Myers of Englewood, a brother, Cletus B. Myers, and a sister, Mrs. R. E. Kurtz, both of Ohio.

Thomas R. Stander, MD, a Life Emeritus Member of the Colorado Medical Society, died Monday, November 8, 1971, in Denver after a brief illness at the age of 74. Doctor Stander was born August 8, 1897, in Louisville, Nebraska. He attended Nebraska Wesleyan University and the University of Nebraska School of Medicine obtaining his MD degree in 1920.

On September 3, 1921, Doctor Stander was married to the former Myrtle Jane Murray in Louisville, Nebraska. She died April 23, 1971. From 1941 to 1946, he served as a colonel in the U.S. Army Medical Corps.

Doctor Stander was a member of the Denver Medical Society, the Colorado Medical Society, the American Medical Association, and the International College of Surgeons. He also belonged to the Leyden-Chiles-Wickersham American Legion Post 1 as well as the Emulation Lodge 154 A.F. & A.M. and the Arapahoe Hunt Club, and was a charter member of the Colorado Thoroughbred Breeders' Association.

Survivors include a daughter, Mrs. Jane Miller of Denver; three brothers, Dr. Theodore C. Stander of Denver, Dr. Frank E. Stander of Pueblo, and Dr. J. Warner Stander of San Jose, California; five sisters, Mrs. Rachel Low of Boulder; Mrs. Dorothy Clifford of Palo Alto, California; Miss Edith Stander of Milwaukee, Wisconsin; Mrs. Margaret Humm of Boone, Iowa; and Mrs. Betty White of St. Charles, Illinois; and two grandchildren.

Ervin T. Rechlitz, MD, died on October 12, 1971, in Pueblo, Colorado. Doctor Rechlitz was born in Milwaukee, Wisconsin, on May 1, 1912. He received his primary and secondary education in the public schools of Milwaukee, following which he studied medicine at Marquette University where he was awarded an MD degree in 1937.

He was licensed to practice medicine in Wisconsin in 1937 and interned in the Milwaukee County General Hospital from 1936 to 1937 and in the Misericordia Hospital in Milwaukee from 1937 to 1938. Doctor Rechlitz trained for his specialty, ophthalmology, at the University of Southern California in 1947-1948. He received a Minnesota license in 1948 and came to Colorado to practice in 1955.

During World War II Doctor Rechlitz served in the U.S. Air Corps from 1941 to 1945. He was discharged from the Army Air Force with the rank of lieutenant colonel.

Doctor Rechlitz was a member of the Pueblo County Medical Society, the Colorado Medical Society, and the American Medical Association.

Cloyd W. Workman, MD, formerly of Denver, died in Canton, Ohio, on November 23, 1971, at the age of 87. He had been ill four months after suffering a fall. Doctor Workman was born on September 21, 1884, in Union Town, Ohio, and received his MD degree from the University of Colorado in 1911.

Doctor Workman and his wife Bertha, of St. Clairsville, Ohio, were married on February 8, 1912, and made their home in Denver. In 1961, Doctor Workman was honored and presented with a gold pin designating him as a 50-year member of the Colorado Medical Society. He was also a member of the Denver Medical Society and the American Medical Association.

Doctor Workman is survived by one son, Lentz Workman, of Canton, Ohio.

Montana

William Melvin Barelman, MD, a Lewistown, Montana, physician, and his wife Betty were killed in a plane crash east of Broadus, Montana, on November 27, 1971. Two of their daughters were seriously injured as well.

Doctor Barelman was born on September 8, 1926, in Wayne, Nebraska. He and Mrs. Barelman, also a Nebraskan, were married in 1947. He received his pre-medical education at the University of Nebraska and earned his MD degree from the University's College of Medicine in 1953. Upon completion of an internship at Methodist Hospital in Omaha, Doctor Barelman practiced medicine for two years in West Point, Nebraska. He moved to Lewistown in 1957 and continued in general practice there until his death.

The Barelmans were both active in community as well as Montana Medical Association affairs. Doctor Barelman served as a member on several important committees of the state association while his wife had just been installed as president of the Woman's Auxiliary. Dr. and Mrs. Barelman are survived by three daughters and a son.

Henry Ranney Large, MD, of Billings, Montana, died on December 10, 1971. Doctor Large was born in Cleveland, Ohio, on April 27, 1910. He was graduated from the University of Michigan with an AB degree in 1933 and received his MD degree in 1938 from Western Reserve University School of Medicine. After an internship at Lenox Hill Hospital in New York, Doctor Large served a resident fellowship in ophthalmology at the Mayo Clinic, Rochester, Minnesota, from 1941 to 1942 and again from 1946 to 1947. After completing this residency, he moved to Billings for the practice of his specialty.

Doctor Large was a diplomate of the American Board of Ophthalmology as well as a member of the Montana Academy of Oto-Ophthalmology, the Yellowstone Valley Medical Society, the Montana Medical Association, and the American Medical Association.

Utah

William Baker, MD, retired St. George EENT specialist, died December 17, 1971, at the age of 82. The son of William Benjamin and Elizabeth Betsy Larson Baker, he was born July 28, 1889 in St. George. In 1910, Doctor Baker was married to Ethel Petty. After her death, he married Wanda Johnson in 1934.

A graduate of Utah State University, Doctor Baker received his medical degree in 1920 from Western Reserve University, Cleveland, Ohio. He interned at the L.D.S. Hospital in Salt Lake City, and served residencies in hospitals in Austria and Czechoslavakia. After his return to the United States, he practiced medicine in Fillmore, Utah, and in Los Angeles, before establishing his specialty practice in St. George.

A former member of the Los Angeles Society of Ophthalmology and Otolaryngology, Doctor Baker served for six years as an examiner on the Los Angeles Induction Board. While in Fillmore, he served as surgeon for the Standard Coal Company. He was a member of the Southern Utah Medical Society and the Utah State and American Medical Associations at the time of his death.

Surviving the doctor are his widow; sons and daughters, Cecil Frank, Mrs. Golden (Loa) Black, Mrs. Doyle (Pearl) Topham, all of Delta; Chester, and Mrs. John (Ilene) Cooper, both of Fillmore; Paul of Salt Lake City; William Johnson of Santa Barbara, California. Also surviving are 23 grandchildren, 18 greatgrandchildren, five brothers, and one sister.

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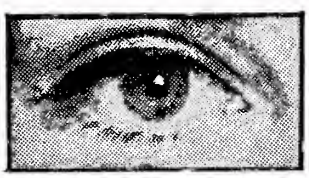

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1. Demeulenaere, L.: Action du R 1132 sur le transit gastro-intestinal, Acta gastroent. Belg. 21:674-680 (Sept.-Oct.) 1958.

Lomotil®

TABLETS/LIQUID

Each tablet and each 5 cc. of liquid contain:
Diphenoxylate hydrochloride . . . 2.5 mg.
(Warning: may be habit-forming)
Atropine sulfate . . . . . 0.025 mg.

Saves the Day

Warnings: Lomotil should be used with caution in patients taking barbiturates and, if not contraindicated, in patients with cirrhosis, advanced liver disease or impaired liver function.

Precautions: Lomotil is classified as a Schedule V substance by Federal Law with theoretically possible addictive potential at high dosage; this is not ordinarily a clinical problem. Use Lomotil with considerable caution in patients receiving addicting drugs. Recommended dosages

should not be exceeded, and medication should be kept out of reach of children. Signs of accidental overdosage may include severe respiratory depression, flushing, lethargy or coma, hypotonic reflexes, nystagmus, pinpoint pupils, tachycardia; continuous observation is necessary. The subtherapeutic amount of atropine sulfate is added to discourage deliberate overdosage.

Adverse Reactions: Side effects reported with Lomotil therapy include nausea, sedation, dizziness, vomiting, pruritus, restlessness, abdominal discomfort, headache, angioneurotic edema, giant urticaria, lethargy, anorexia, numbness of the extremities, atropine effects, swelling of the gums, euphoria, depression and malaise.

Overdosage: The medication should be kept out of reach of children since accidental overdosage may cause severe, even fatal, respiratory depression.

Dosage: The recommended average initial daily dosages, given in divided doses until diarrhea is controlled, are as follows:

Children:

3-6 mo.... ½ tsp.* t.i.d. (3 mg.)
6-12 mo... ½ tsp. q.i.d. (4 mg.)
1-2 yr..... ½ tsp. 5 times daily (5 mg.)
2-5 yr..... 1 tsp. t.i.d. (6 mg.)
5-8 yr..... 1 tsp. q.i.d. (8 mg.)
8-12 yr.... 1 tsp. 5 times daily (10 mg.)
Adults:....2 tsp. 5 times daily (20 mg.)
or 2 tablets q.i.d.

*Based on 4 cc. per teaspoonful.

Use of Lomotil is not recommended in infants less than 3 months of age.

Maintenance dosage may be as low as one-fourth the initial daily dosage.

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VOLUME 69 • NUMBER 3

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Important Note: This drug is not a simple analgesic. Do not administer casually. Carefully evaluate patients before starting treatment and keep them under close supervision. Obtain a detailed history, and complete physical and laboratory examination (complete hemogram, urinalysis, etc.) before prescribing and at frequent intervals thereafter. Carefully select patients, avoiding those responsive to routine measures, contraindicated patients or those who cannot be observed frequently. Warn patients not to exceed recommended dosage. Short-term relief of severe symptoms with the smallest possible dosage is the goal of therapy. Dosage should be taken with meals or a full glass of milk. Patients should discontinue the drug and report immediately any sign of: fever, sore throat, oral lesions (symptoms of blood dyscrasia); dyspepsia, epigastric pain, symptoms of anemia, black or tarry stools or other evidence of intestinal ulceration or hemorrhage, skin reactions, significant weight gain or edema. A one-week trial period is adequate. Discontinue in the absence of a favorable response. Restrict treatment periods to one week in patients over sixty.
Indications: Acute gouty arthritis, rheumatoid arthritis, rheumatoid spondylitis.
Contraindications: Children 14 years or less; senile patients; history or symptoms of G.I. inflammation or ulceration including severe, recurrent or persistent dyspepsia; history or presence of drug allergy; blood dyscrasias; renal, hepatic or cardiac dysfunction; hypertension; thyroid disease; systemic edema; stomatitis and salivary gland enlargement due to the drug; polymyalgia rheumatica and temporal arteritis; patients receiving other potent chemotherapeutic agents, or long-term anticoagulant therapy.
Warnings: Age, weight, dosage, duration of therapy, existence of concomitant diseases, and concurrent potent chemotherapy affect incidence of toxic reactions. Carefully instruct and observe the individual patient, especially the aging (forty years and over) who have increased susceptibility to the toxicity of the drug. Use lowest effective dosage. Weigh initially unpredictable benefits against potential risk of severe, even fatal, reactions. The disease condition itself is unaltered by the drug. Use with caution in first trimester of pregnancy and in nursing mothers. Drug may appear in cord blood and breast milk. Serious, even fatal, blood dyscrasias, including aplastic anemia, may occur suddenly despite regular hemograms, and may become manifest days or weeks after cessation of drug. Any significant change in total white count, relative decrease in granulocytes, appearance of immature forms, or fall in hematocrit should signal immediate cessation of therapy and complete hematologic investigation. Unexplained bleeding involving CNS, adrenals, and G.I. tract has occurred. The drug may potentiate action of insulin, sulfonylurea, and sulfonamide-type agents. Carefully observe patients taking these agents. Nontoxic and toxic goiters and myxedema have been reported (the drug reduces iodine uptake by the thyroid). Blurred vision can be a significant toxic symptom worthy of a complete ophthalmological examination. Swelling of ankles or face in patients under sixty may be prevented by reducing dosage. If edema occurs in patients over sixty, discontinue drug.
Precautions: The following should be accomplished at regular intervals: Careful detailed history for disease being treated and detection of earliest signs of adverse reactions; complete physical examination including check of patient's weight; complete weekly (especially for the aging) or an every two week blood check; pertinent laboratory studies. Caution patients about participating in activity requiring alertness and coordination, as driving a car, etc. Cases of leukemia have been reported in patients with a history of short- and long-term therapy. The majority of these patients were over forty. Remember that arthritic-type pains can be the presenting symptom of leukemia.
Adverse Reactions: This is a potent drug; its misuse can lead to serious results. Review detailed information before beginning therapy. Ulcerative esophagitis, acute and reactivated gastric and duodenal ulcer with perforation and hemorrhage, ulceration and perforation of large bowel, occult G.I. bleeding with anemia, gastritis, epigastric pain, hematemesis, dyspepsia, nausea, vomiting and diarrhea, abdominal distention, agranulocytosis, aplastic anemia, hemolytic anemia, anemia due to blood loss including occult G.I. bleeding, thrombocytopenia, pancytopenia, leukemia, leukopenia, bone marrow depression, sodium and chloride retention, water retention and edema, plasma dilution, respiratory alkalosis, metabolic acidosis, fatal and nonfatal hepatitis (cholestasis may or may not be prominent), petechiae, purpura without thrombocytopenia, toxic pruritus, erythema nodosum, erythema multiforme, Stevens-Johnson syndrome, Lyell's syndrome (toxic necrotizing epidermolysis), exfoliative dermatitis, serum sickness, hypersensitivity angiitis (polyarteritis), anaphylactic shock, urticaria, arthralgia, fever, rashes (all allergic reactions require prompt and permanent withdrawal of the drug), proteinuria, hematuria, oliguria, anuria, renal failure with azotemia, glomerulonephritis, acute tubular necrosis, nephrotic syndrome, bilateral renal cortical necrosis, renal stones, ureteral obstruction with uric acid crystals due to uricosuric action of drug, impaired renal function, cardiac decompensation, hypertension, pericarditis, diffuse interstitial myocarditis with muscle necrosis, perivascular granulomata, aggravation of temporal arteritis in patients with polymyalgia rheumatica, optic neuritis, blurred vision, retinal hemorrhage, toxic amblyopia, retinal detachment, hearing loss, hyperglycemia, thyroid hyperplasia, toxic goiter association of hyperthyroidism and hypothyroidism (causal relationship not established), agitation, confusional states, lethargy; CNS reactions associated with overdosage, including convulsions, euphoria, psychosis, depression, headaches, hallucinations, giddiness, vertigo, coma, hyperventilation, insomnia; ulcerative stomatitis, salivary gland enlargement.
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For complete details, including dosage, please see full prescribing information.

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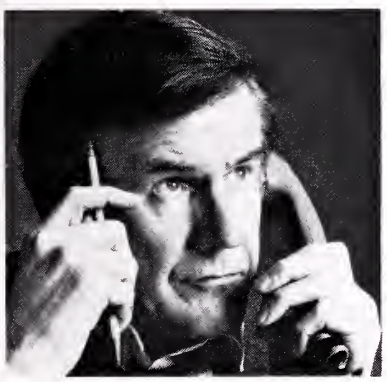

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OUR COVER PHOTO

The striking entrance to the Nevada State Medical Association Building illuminates a rainy night. The building is located at 3660 Baker Lane in Reno. The lower level was constructed in 1962 and the second story addition was completed in 1970. Photo by Robert L. Tucker, Reno, Nevada.

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To the Editor:

It was a pleasant surprise to see a photograph of the Santa Fe Opera theatre on the September, 1971 issue of the *Rocky Mountain Medical Journal*, significantly, a New Mexico issue. I certainly hope readers of the *Journal* caught the brief but well done cover photo description on Page 2, but if not, I am sure the attractiveness of the photograph may very well have led readers to inquire as to the location of the theatre.

As well known as the Santa Fe Opera is, it can never get enough of this kind of publicity. On behalf of the Association, I thank you for helping us in this area and hope you will extend our thoughts of appreciation to the Editorial Board.

As you well know, the attractiveness of the Santa Fe Opera theatre is well matched by the attractiveness of its performances. Such standards have the advantage of attracting thousands of people to the Santa Fe Opera from all over the world, but unfortunately, place a considerable strain on our finances. Your *Journal* readers might be interested to know that the immediate future of the Santa Fe Opera can be reasonably secured by a recent grant from The Ford Foundation in recognition of the quality of the company. This grant does require matching funds, hence we would of course appreciate any help we can get from those interested in the future of the Santa Fe Opera.

William L. Weinrod, President
The Opera Association of New Mexico
P.O. Box 2408
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* * * * *

To the Editor:

I am editing a book on the role of faith or religion in healing from a physician's standpoint. Any physician interested in contributing an article or experience to this book, please write to the following address:

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SYNTHROID, with its smooth road to complete thyroid replacement therapy, has been selected for more patients in the United States and Canada than any other brand of thyroid medication.

2. Braverman, L. E., Ingbar, S. H., and Sterling, K.: Conversion of Thyroxine (T4) to Triiodothyronine (T3) in Athyreotic Human Subjects, *J. Clin. Invest.* 49:855-64, 1970.

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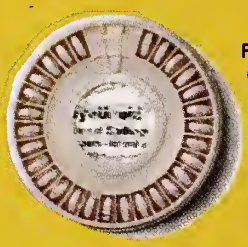

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merican Druggist BLUEBOOK, March, 1971.

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GENERAL ASSAY TECHNIQUE	"Its major disadvantage is inedequete standardizetion of hormonal content."[8]	Unlike desiccated thyroid U.S.P., thyroxine does not require biologic standardization to establish its potency.[2,6] Crystalline T_4 is used. Purity is verified by paper chrometography. Content of tablets is standardized by weight.
CLINICAL RESPONSE	"T_3 and T_4 ratio varies according to gland source. Fluctuations in response can occur. Potency can vary."[3]	"Sodium levothyroxine has been extensively used with satisfaction and is widely held to be superior to (desiccated) thyroid."[7] "There are well documented exampies of patients who failed to respond satisfactorily to desiccated thyroid but subsequently responded to (sodium-1) thyroxine."[4]
PREDICTABILITY	Failure of thyroid U.S.P. treated patients to show clinical improvement and/or lack of correletion in clinical findings to thyroid function test results has been frequently discussed in the literature.[8,9,10,11,12,13,14,15,16] Regardless of which factor or factors accounts for this phenomenon the fact remains that discrepancies do occur.	Test results predictably elevated. ". . . oral potency of this materlal is attested to by a uniformiy good clinical response corroborated by a prompt and sustained increase in the serum PBI levels."[16]

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See next pages for prescribing information.

T_4 IS THE PREDICTABLE HORMONE BECAUSE IT LOVES PROTEIN.

SYNTHROID® (sodium levothyroxine) is pure synthetic T_4, the major circulating thyroid hormone. It is reliable to use because of its affinity for protein-binding sites in the blood. T_3 is more fickle. Sometimes it binds. Sometimes it doesn't. T_4 more *predictably* binds to protein.

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ALL THYROID-FUNCTION TESTS ARE USEFUL IN MONITORING SYNTHROID THERAPY.

No calculations are needed, test interpretation is simple.

Any of the commonly used T_4 thyroid function tests (P.B.I., T_4 By Column, Murphy-Pattee, Free Thyroxine) are useful in monitoring patients on T_4 because they *all* measure T_4. Patients on SYNTHROID are thereby easy to monitor because their results will fall within predictable, elevated test ranges. Of course, clinical assessment is the best criterion of the thyroid status of the drug-treated patient.

TWO GOOD REASONS WHY THE ROAD TO NORMALIZED THYROID STATUS IS SO SMOOTH FOR THE SYNTHROID PATIENT.

(1) The onset of action of T_4 is gradual. It has a long in vivo "half-life" of over six days. (Occasional missed doses or accidental double-doses are of le concern because of this factor)[1]; (2) since SYNTHROID contains on T_4, the potential for metabolic surges traceable to more potent iodides (T_3) is eliminated.

1. Latiolais, C. J., and Berry, C. C.: Misuse of Prescription Medications by Outpatients, *Drug Intelligence & Clin. Pharm.* 3:270-7, 196

TEST	HYPOTHYROID	SYNTHROID THERAPEUTIC NORMAL
P.B.I.	Less than 4 mcg %	6-10 mcg %
T_4 By Column	Less than 3 mcg %	7-9 mcg %
T_3 (Resin)	Less than 25%	27-35%
T_3 (Red Cell)	Less than 11%	11.5-18%
Free Thyroxine	Less than 0.7 nanograms %	0.7-2.5 nanograms %
Murphy-Pattee	Less than 2.9 mcg %	4-11 mcg %

Choose the Smooth Road ...to thyroid replacement therapy

APPROXIMATE DOSAGE EQUIVALENTS*

			Animal Gland		
CYTOMEL (Sodium liothyronine) Synthetic T_3	EUTHROID** (Liotrix) Synthetic T_3-T_4	THYROLAR*** (Liotrix) Synthetic T_3-T_4	Desiccated (Thyroid, USP) Cow, sheep or hog thyroid	PROLOID (thyroglobulin) Frozen hog thyroid	SYNTHROID (Sodium levothyroxine) Synthetic T_4
Unscored 5 mcg.	N.A.	N.A.	unscored ¼ gr.	¼ gr.	0.025 mg.
N.A.	½	½	unscored ½ gr.	½ gr.	0.05 mg.
25 mcg.	1	1	unscored 1 gr.	1 gr.	0.1 mg.
N.A.	N.A.	N.A.	N.A.	1½ gr.	0.15 mg.
50 mcg.	2	2	unscored 2 gr.	2 gr.	0.2 mg.
N.A.	3	3	unscored 3 gr.	3 gr.	0.3 mg.
N.A.	N.A.	N.A.	unscored 5 gr.	5 gr.	0.5 mg.
N.A.	N.A.	N.A.	N.A.	N.A.	Injectable 500 mcg.

N.A. = Not Available Commercially

*Equivalents shown are chemical, and do not take into consideration individual patient variables. Clinical effect is approximate and should be monitored when converting a patient to SYNTHROID. This is particularly important in patients previously on desiccated thyroid. In these patients, lower doses of SYNTHROID may produce the same metabolic effect.

**Euthroid (#1 tablet) contains 60 mcg. of T_4 and 15 mcg. of T_3.

***Thyrolar (#1 tablet) contains 50 mcg. of T_4 and 12.5 mcg. of T_3.

Synthroid®
(sodium levothyroxine)

Indications: SYNTHROID (sodium levothyroxine) is specific replacement therapy for diminished or absent thyroid function resulting from primary or secondary atrophy of the gland, congenital defect, surgery, excessive radiation, or antithyroid drugs. Indications for SYNTHROID (sodium levothyroxine) **Tablets** include myxedema, hypothyroidism without myxedema, hypothyroidism in pregnancy, pediatric and geriatric hypothyroidism, hypopituitary hypothyroidism, simple (nontoxic) goiter, and reproductive disorders associated with hypothyroidism. SYNTHROID (sodium levothyroxine) **for Injection** is indicated for intravenous use in myxedematous coma and other thyroid dysfunctions where rapid replacement of the hormone is required. The injection is also indicated for intramuscular use in cases where the oral route is suspect or contraindicated due to existing conditions or to absorption defects, and when a rapid onset of effect is not desired.

Precautions: As with other thyroid preparations, an overdosage may cause diarrhea or cramps, nervousness, tremors, tachycardia, vomiting and continued weight loss. These effects may begin after four or five days or may not become apparent for one to three weeks. Patients receiving the drug should be observed closely for signs of thyrotoxicosis. If indications of overdosage appear, discontinue medication for 2-6 days, then resume at a lower dosage level. In patients with diabetes mellitus, careful observations should be made for changes in insulin or other antidiabetic drug dosage requirements. If hypothyroidism is accompanied by adrenal insufficiency, as Addison's Disease (chronic subcortical insufficiency), Simmonds's Disease (panhypopituitarism) or Cushing's syndrome (hyperadrenalism), these dysfunctions must be corrected prior to and during SYNTHROID (sodium levothyroxine) administration. The drug should be administered with caution to patients with cardiovascular disease; development of chest pains or other aggravations of cardiovascular disease requires a reduction in dosage.

Contraindications: Thyrotoxicosis, acute myocardial infarction. **Side effects:** The effects of SYNTHROID (sodium levothyroxine) therapy are slow in being manifested. Side effects, when they do occur, are secondary to increased rates of body metabolism; sweating, heart palpitations with or without pain, leg cramps, and weight loss. Diarrhea, vomiting, and nervousness have also been observed. Myxedematous patients with heart disease have died from abrupt increases in dosage of thyroid drugs. Careful observation of the patient during the beginning of any thyroid therapy will alert the physician to any untoward effects.

In most cases with side effects, a reduction of dosage followed by a more gradual adjustment upward will result in a more accurate indication of the patient's dosage requirements without the appearance of side effects.

Dosage and Administration: The activity of a 0.1 mg. SYNTHROID (sodium levothyroxine) TABLET is equivalent to approximately one grain thyroid, U.S.P. Administer SYNTHROID tablets as a single daily dose, preferably after breakfast. In hypothyroidism without myxedema, the usual initial adult dose is 0.1 mg. daily, and may be increased by 0.1 mg. every 30 days until proper metabolic balance is attained. Clinical evaluation should be made monthly and PBI measurements about every 90 days. Final maintenance dosage will usually range from 0.2-0.4 mg. daily. In adult myxedema, starting dose should be 0.025 mg. daily. The dose may be increased to 0.05 mg. after two weeks and to 0.1 mg. at the end of a second two weeks. The daily dose may be further increased at two-month intervals by 0.1 mg. until the optimum maintenance dose is reached (0.1-1.0 mg. daily).

Supplied: Tablets: 0.025 mg., 0.05 mg., 0.1 mg., 0.15 mg., 0.2 mg., 0.3 mg., 0.5 mg., scored and color-coded, in bottles of 100, 500, and 1000. Injection: 500 mcg. lyophilized active ingredient and 10 mg. of Mannitol, N.F., in 10 ml. single-dose vial, with 5 ml. vial of Sodium Chloride Injection, U.S.P., as a diluent. SYNTHROID (sodium levothyroxine) **for Injection** may be administered intravenously utilizing 200-400 mcg. of a solution containing 100 mcg. per ml. If significant improvement is not shown the following day, a repeat injection of 100-200 mcg. may be given.

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DIVISION OF TRAVENOL LABORATORIES, INC.
Morton Grove, Illinois 60053

THE FACTS ARE CLEAR AND HERE IS OUR OFFER.

Synthetic thyroid drugs are an improvement over animal gland products. Patients, even athyrotic ones, can be completely maintained on SYNTHROID (T_4) alone. Thyroid function tests are easy to interpret since they are *predictably* elevated when the patient adheres to SYNTHROID. Of all synthetic thyroid drugs, SYNTHROID is the most economical to the patient.

OFFER: EE

Free TAB-MINDER medication dispensers to start or convert all your hypothyroid patients to SYNTHROID. Free information to physicians on role of thyroid function tests in a new booklet titled: "Guideposts to Thyroid Therapy." Ask us.

Name

Address

City State Zip

THE BOOK CORNER

New books received are acknowledged in this section and such acknowledgment must be regarded as sufficient return for the courtesy of the sender. Selection will be made for review in the interests of our readers and as space permits. Books are listed with advance data supplied by publishers. Prices quoted are not guaranteed. For further information, address queries to the publishers. Books here listed are available for lending from the Denver Medical Society Library.

Recent Acquisitions

Advances in Clinical Chemistry, v. 14: Edited by O. Bodansky and A. L. Latner. New York, 1971, Academic Press. 500 p. Price: $22.50.

Approach to the Medical Care of the Sick Newborn: By S. H. Pierog and A. Ferrara. St. Louis, 1971, Mosby. 292 p. Price: $11.50.

Current Concepts in Dyslexia: Edited by Jack Hartstein. St. Louis, 1971, Mosby. 212 p. Price: $12.00.

Current Diagnosis and Treatment: By M. A. Krupp and M. J. Chatton. Los Altos, California, 1972, Lange. 962 p. Price: $11.00.

Current Psychiatric Therapies, v. 11: Edited by Jules H. Masserman. New York, 1971, Grune and Stratton, 224 p. Price: $14.00.

Good Scientific Writing: By Charles G. Roland. Chicago, 1971, A.M.A. 254 p. Price: $2.50.

Hermaphroditism, Genital Anomalies and Related Endocrine Disorders: By Howard W. Jones and William W. Scott. 2d ed. Baltimore, 1971, Williams & Wilkins. 564 p. Price: Not Set.

Instructional Course Lectures, v. 20: By American Academy of Orthopaedic Surgeons. St. Louis, 1971, Mosby. 244 p. Price: Gift.

One Life: By Christiaan Barnard and Curtis B. Pepper. New York, 1971, Bantam Books. 529 p. Price: $1.50.

Pediatric Clinical Gastroenterology: By Arnold Silverman and others. St. Louis, 1971, Mosby. 580 p. Price: $39.50.

Pediatric Therapy: Edited by Harry C. Shirkey. 4th ed. St. Louis, 1972, Mosby. 1221 p. Price: $34.50.

Principles and Management of Human Reproduction: By Duncan E. Reid and others. Philadelphia, 1972, Saunders. 915 p. Price: Not Set.

Progress in Hematology, v. 7: Edited by Elmer B. Brown and Carl V. Moore. New York, 1971, Grune and Stratton. 416 p. Price: $19.75.

Respiratory Physiology: By N. Balfour Slonim and Lyle H. Hamilton, 2d ed. St. Louis, 1971, Mosby. 229 p. Price: $10.75.

Ski at any Age: By M. H. Stiles and R. D. O'Malley. New York, 1971, Award House. 113 p. Price: $5.95.

Stroke Rehabilitation: By Harry T. Zankel. Springfield, Ill., 1971, Thomas. 284 p. Price: Gift.

Symposium on the Hand, v. 3: Edited by Lester M. Cramer and Robert A. Chase. St. Louis, 1971, Mosby. 287 p. Price: $38.50.

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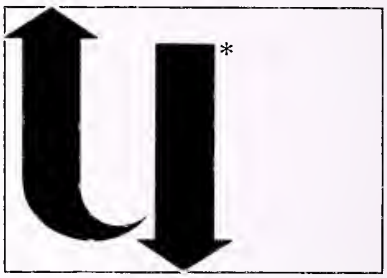
Keeping quality up



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fluorometholone	**Oxylone®**
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Upjohn

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Upjohn's low-priced tetracycline

Upjohn has been able to reduce the price of tetracycline without reducing the quality you expect from an Upjohn product.

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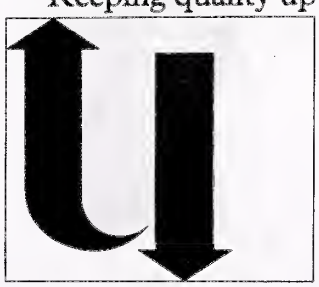
(tetracycline HCl, Upjohn)
Available as 250 mg capsules and tetracycline syrup 125 mg/5 ml.

Keeping quality up



and cost down

Helps control the underlying problem– anxiety

Miltown®
(meprobamate)

when reassurance is not enough

Indications: Relief of anxiety and tension; adjunctively in various disease states in which anxiety and tension are manifested; and to promote sleep in anxious, tense patients.

Contraindications: Acute intermittent porphyria and allergic or idiosyncratic reactions to meprobamate or related compounds such as carisoprodol, mebutamate, tybamate, carbromal.

Warnings: *Drug Dependence:* Physical and psychological dependence and abuse have occurred. Chronic intoxication, from prolonged use and usually greater than recommended doses, leads to ataxia, slurred speech, vertigo. Carefully supervise dose and amounts prescribed, and avoid prolonged use, especially in alcoholics and addiction-prone persons. Sudden withdrawal after prolonged and excessive use may precipitate recurrence of pre-existing symptoms (e.g., anxiety, anorexia, insomnia) or withdrawal reactions (e.g., vomiting, ataxia, tremors, muscle twitching, confusional states, hallucinosis; rarely convulsive seizures, more likely in persons with CNS damage or pre-existent or latent convulsive disorders). Therefore, reduce dosage gradually (1-2 weeks) or substitute a short-acting barbiturate, than gradually withdraw. *Potentially Hazardous Tasks:* Driving a motor vehicle or operating machinery. *Additive Effects:* Possible additive effects between meprobamate, alcohol, and other CNS depressants or psychotropic drugs. *Pregnancy and Lactation:* Safe use not established; weigh potential benefits against potential hazards in pregnancy, nursing mothers, or women of childbearing potential. Animal data at five times the maximum recommended human dose show reduction in litter size due to resorption. Meprobamate appears in umbilical cord blood at or near maternal plasma levels, and in breast milk at levels 2-4 times that of maternal plasma. *Children Under Six:* Drug not recommended.

Precautions: To avoid oversedation, use lowest effective dose, particularly in elderly and/or debilitated patients. Consider possibility of suicide attempts; dispense least amount of drug feasible at any one time. To avoid excess accumulation, use caution in patients with compromised liver or kidney function. Meprobamate may precipitate seizures in epileptics.

Adverse Reactions: *Central Nervous System:* Drowsiness, ataxia, dizziness, slurred speech, headache, vertigo, weakness, paresthesias, impairment of visual accommodation, euphoria, overstimulation, paradoxical excitement, fast EEG activity. *Gastrointestinal:* Nausea, vomiting, diarrhea. *Cardiovascular:* Palpitations, tachycardia, various forms of arrhythmia, transient ECG changes, syncope; also, hypotensive crises (including one fatal case). *Allergic or Idiosyncratic:* Usually after 1-4 doses. Milder reactions: itchy, urticarial, or erythematous maculopapular rash (generalized or confined to groin). Others: leukopenia, acute nonthrombocytopenic purpura, petechiae, ecchymoses, eosinophilia, peripheral edema, adenopathy, fever, fixed drug eruption with cross reaction to carisoprodol, and cross sensitivity between meprobamate/mebutamate and meprobamate/carbromal. More severe, rare hypersensitivity: hyperpyrexia, chills, angioneurotic edema, bronchospasm, oliguria, anuria, anaphylaxis, erythema multiforme, exfoliative dermatitis, stomatitis, proctitis, Stevens-Johnson syndrome; bullous dermatitis (one fatal case after meprobamate plus prednisolone). Stop drug, treat symptomatically (e.g., possible use of epinephrine, antihistamines, and in severe cases corticosteroids). *Hematologic:* Agranulocytosis and aplastic anemia (rarely fatal), but no causal relationship established. Rarely, thrombocytopenic purpura. *Other:* Exacerbation of porphyric symptoms.

Usual Adult Dosage: 1200 to 1600 mg daily, in three or four divided doses; doses above 2400 mg daily not recommended.

Overdosage: Suicidal attempts with meprobamate, alone or with alcohol or other CNS depressants or psychotropic drugs, have produced drowsiness, lethargy, stupor, ataxia, coma, shock, vasomotor and respiratory collapse, and death. Empty stomach, treat symptomatically; cautiously give respiratory assistance, CNS stimulants, pressor agents as needed. Meprobamate is metabolized in the liver and excreted by the kidney. Diuresis and dialysis have been used successfully. Carefully monitor urinary output; avoid overhydration; observe for possible relapse due to incomplete gastric emptying and delayed absorption.

REV. 10/71

Before prescribing, consult package circular or latest PDR information.

WALLACE PHARMACEUTICALS
Cranbury, N.J. 08512

Call it what you will, it may be premalignant.

Before

3/29/67 Before therapy with 5%-FU cream. Patient P. T shows a moderately severe solar keratotic involvement. Note residual scarring from the previous cryosurgical and electrosurgical procedures on forehead and ridge of nose adjacent to periauricular area.

After

6/12/67 Seven weeks after cessation of therapy. Reactions have subsided. Residual scarring is not seen except for that due to prior surgery. Inflammation has disappeared and face is clear of keratotic lesions.

ROCHE
Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

;nd Efudex® (fluorouracil) 5% cream can resolve it.

(all it actinic, solar or senile keratoses, rany regard it as "precancerous."[1,2]

Jpical fluorouracil, considered by some dermatologists to be a major avance in the treatment of multiple solar keratoses,[3,4] offers the physi-cn a relatively inexpensive alternative to cryosurgery, electrodesic-cion and cold knife surgery. Of the topical fluorouracils available, only Fudex offers 2% and 5% solution and 5% cream formulations—formula-tns that have proved effective in the treatment of these mutliple lesions.

Isual duration of therapy, 2 to 4 weeks.

Sdies showed that with the 2% and 5% Efudex preparations, the usual dration of therapy was only 2 to 4 weeks.[5] Other studies with topical forouracil revealed that when concentrations of less than 2% were ued, significant numbers of lesions recurred.[6]

'reats the lesions you can't see, too.

Imerous lesions, not apparent prior to 2% and 5% Efudex therapy, nifested themselves by definite reactions, while intervening skin mained relatively unaffected.[5] The early eradication of these subclini-l lesions (which may otherwise have undergone further progression) obably accounts for the reduced incidence of future solar keratoses in tients treated with topical fluorouracil—especially with 5% ncentrations.[6]

low to identify solar keratoses.

'pically, the lesion—a flat or slightly elevated brown to red-brown pule—is dry, rough, adherent and sharply defined. Multiple lesions e the rule.

redictable therapeutic response.

he response to a typical course of Efudex therapy is usually aracteristic and predictable. After 3 or 4 days of treatment, erythema gins to appear in the area of keratoses. This is followed by a moderate intense inflammatory response, scaling and occasionally moderate nderness or pain. The height of this response generally occurs two eeks after the start of therapy and then begins to subside as treatment stopped. Within two weeks of discontinuing medication, the flammation is usually gone. Lesions that do not respond should biopsied.

ferences: 1. Allen, A. C.: *The Skin, A Clinicopathological Treatise*, ed. 2, New York, une & Stratton, 1967, p. 842. 2. Dillaha, C. J.; Jansen, G. T, and Honeycutt, W. M.: reatment of Actinic Keratoses with Topical Fluorouracil," in Waisman, M. (ed.): *armaceutical Therapeutics in Dermatology*, Springfield, Ill., Charles C Thomas, 1968, 92. 3. Belisario, J. C.: *Cutis*, *6*:293, 1970. 4. Sams, W. M.: *Arch. Derm.*, *97*:14, 1968. Data on file, Hoffmann-La Roche Inc., Nutley, New Jersey. 6. Williams, A. C., and in, E.: *Cancer*, *25*:450, 1970.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Multiple actinic or solar keratoses.

Contraindications: Patients with known hypersensitivity to any of its components.

Warnings: If occlusive dressing used, may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.

Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.

Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with nonmetal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.

How Supplied: Solution, 10-ml drop dispensers—containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)aminomethane, hydroxypropyl cellulose, parabens (methyl and propyl) and disodium edetate.

Cream, 25-Gm tubes—containing 5% fluorouracil in a vanishing cream base consisting of white petrolatum, stearyl alcohol, propylene glycol, polysorbate 60 and parabens (methyl and propyl).

now
Efudex®
(fluorouracil)
cream/solution

IN ASTHMA
IN EMPHYSEMA

optional therapy

THE mudranes®

All Mudranes are bronchodilator-mucolytic in action, and are indicated for symptomatic relief of bronchial asthma, emphysema, bronchiectasis and chronic bronchitis. **MUDRANE tablets** contain 195 mg. potassium iodide; 130 mg. aminophylline; 21 mg. phenobarbital (Warning: may be habit-forming); 16 mg. ephedrine HCl. **Dosage** is one tablet with full glass of water, 3 or 4 times a day. **Precautions** are those for aminophylline-phenobarbital-ephedrine combinations. **Iodide side-effects:** May cause nausea. Very long use may cause goiter. Discontinue if symptoms of iodism develop. **Iodide contraindications:** Tuberculosis; pregnancy (to protect the fetus against possible depression of thyroid activity). **MUDRANE-2 tablets** contain 195 mg. potassium iodide; 130 mg. aminophylline. **Dosage** is one tablet with full glass of water, 3 or 4 times a day. **Precautions** are those for aminophylline. **Iodide side-effects and contraindications are listed above. MUDRANE GG tablets** contain 100 mg. glyceryl guaiacolate; 130 mg. aminophylline; 21 mg. phenobarbital (Warning: may be habit-forming); 16 mg. ephedrine HCl. **Dosage** is one tablet with full glass of water, 3 or 4 times a day. **Precautions** are those for aminophylline-phenobarbital-ephedrine combinations. **MUDRANE GG-2 tablets** contain 100 mg. glyceryl guaiacolate; 130 mg. aminophylline. **Dosage** is one tablet with full glass of water, 3 or 4 times a day. **Precautions:** Those for aminophylline. **MUDRANE GG Elixir.** Each teaspoonful (5 cc) contains 26 mg. glyceryl guaiacolate; 20 mg. theophylline; 5.4 mg. phenobarbital (Warning: may be habit-forming); 4 mg. ephedrine HCl. **Dosage:** Children, 1 cc for each 10 lbs. of body weight; one teaspoonful (5 cc) for a 50 lb. child. Dose may be repeated 3 or 4 times a day. Adult, one tablespoonful, 4 times daily. All doses should be followed with ½ to full glass of water. **Precautions:** See those listed above for Mudrane GG tablets.

MUDRANE—original formula
First choice

MUDRANE-2
When ephedrine is too exciting or is contraindicated

MUDRANE GG
During pregnancy or when K.I. is contraindicated or not tolerated

MUDRANE GG-2
A counterpart for Mudrane-2

MUDRANE GG ELIXIR
For pediatric use or where liquids are preferred

Clinical specimens available to physicians.

WILLIAM P. POYTHRESS & COMPANY, INC., RICHMOND, VIRGINIA 23217

Manufacturers of Ethical Pharmaceuticals

the compound analgesic that calms instead of caffeinates

In addition to pain, this patient has experienced anxiety, fear, embarrassment, anger, and frustration. It's very likely that these psychic factors actually accentuated his perception of pain. Surely the last thing he needs is an analgesic containing caffeine. A much more logical choice is Phenaphen with Codeine. It provides a quarter grain of phenobarbital to take the nervous "edge" off, so the rest of the formula can control the pain more effectively. It's no accident that the Phenaphen formulations contain a sedative rather than a stimulant. Don't you agree, Doctor, that psychic overlay is an important factor in most of the accident cases you see?

A. H. Robins Company, Richmond, Va. A·H·ROBINS

Phenaphen® with Codeine

Phenaphen with Codeine Nos. 2, 3, or 4 contains: Phenobarbital (¼ gr.), 16.2 mg. (warning: may be habit forming); Aspirin (2½ gr.), 162.0 mg.; Phenacetin (3 gr.), 194.0 mg.; Hyoscyamine sulfate, 0.031 mg.; Codeine phosphate, ¼ gr. (No. 2), ½ gr. (No. 3) or 1 gr. (No. 4) (warning: may be habit forming).

Indications: Provides relief in severer grades of pain, on low codeine dosage, with minimal possibility of side effects. Its use frequently makes unnecessary the use of addicting narcotics. *Contraindications:* Hypersensitivity to any of the components. *Precautions:* As with all phenacetin-containing products, excessive or prolonged use should be avoided. *Side effects:* Side effects are uncommon, although nausea, constipation and drowsiness may occur. *Dosage:* Phenaphen No. 2 and No. 3—1 or 2 capsules every 3 to 4 hours as needed; Phenaphen No. 4—1 capsule every 3 to 4 hours as needed. For further details see product literature.

(III) Phenaphen with Codeine is now classified in Schedule III, Controlled Substances Act of 1970. Available on prescription and may be refilled 5 times within 6 months, unless restricted by state law.

Snifter working again

For upper respiratory allergies and infections including the common cold, Dimetapp Extentabs® effectively relieve the stuffiness, drip and congestion all night and all day long on just one Extentab every 12 hours. For most patients drowsiness or overstimulation is unlikely.

prescribing information appears on next page

A·H·ROBINS

A. H. Robins Company
Richmond, Va. 23220

Dimetapp® Extentabs

Dimetane® (brompheniramine maleate), 12 mg.; phenylephrine HCl, 15 mg.; phenylpropanolamine HCl, 15 mg.

Dimetapp Extentabs®

INDICATIONS: Dimetapp Extentabs are indicated for symptomatic relief of allergic manifestations of upper respiratory illnesses, such as the common cold, seasonal allergies, sinusitis, rhinitis, conjunctivitis and otitis. In these cases it quickly reduces inflammatory edema, nasal congestion and excessive upper respiratory secretions, thereby affording relief from nasal stuffiness and postnasal drip.
CONTRAINDICATIONS: Hypersensitivity to antihistamines of the same chemical class. Dimetapp Extentabs are contraindicated during pregnancy and in children under 12 years of age. Because of its drying and thickening effect on the lower respiratory secretions, Dimetapp is not recommended in the treatment of bronchial asthma. Also, Dimetapp Extentabs are contraindicated in concurrent MAO inhibitor therapy.
WARNINGS: *Use in children:* In infants and children particularly, antihistamines in overdosage may produce convulsions and death.
PRECAUTIONS: Administer with care to patients with cardiac or peripheral vascular diseases or hypertension. Until the patient's response has been determined, he should be cautioned against engaging in operations requiring alertness such as driving an automobile, operating machinery, etc. Patients receiving antihistamines should be warned against possible additive effects with CNS depressants such as alcohol, hypnotics, sedatives, tranquilizers, etc.
ADVERSE REACTIONS: Adverse reactions to Dimetapp Extentabs may include hypersensitivity reactions such as rash, urticaria, leukopenia, agranulocytosis and thrombocytopenia; drowsiness, lassitude, giddiness, dryness of the mucous membranes, tightness of the chest, thickening of bronchial secretions, urinary frequency and dysuria, palpitation, hypotension/hypertension, headache, faintness, dizziness, tinnitus, incoordination, visual disturbances, mydriasis, CNS-depressant and (less often) stimulant effect, anorexia, nausea, vomiting, diarrhea, constipation, and epigastric distress.
HOW SUPPLIED: Light blue Extentabs in bottles of 100 and 500.

Bone Tumor Referral Center

One of three newly established Bone Tumor Referral Centers in the nation is located in the Department of Radiology at the University of Missouri Medical Center, Columbia, Missouri. Designed to help physicians in the diagnostic evaluation of bone tumor x-rays, the Centers (the other two are in Los Angeles and Philadelphia) were established at the recommendation of the Commission on Cancer of the American College of Radiology.

A physician wanting assistance in the diagnosis of bone tumors can use the Center by sending the problem x-rays along with the resume of the patient's history and findings. The radiograph will be reviewed and the report sent to the doctor by mail or long distance telephone if desired or indicated. There is no charge for this service. Consultation will include the evaluation of the roentgenograms indicating rate of growth and predicted histologic nature and an evaluation of the histologic material, if available, by a skilled pathologist.

Radiographs and patient resumes may be sent to Dr. Gwilym S. Lodwick, Professor and Chairman of the Department of Radiology, University of Missouri Medical Center, Columbia, Missouri 65201.

"Your dinner was perfect—from soup to 'Dicarbosil'."

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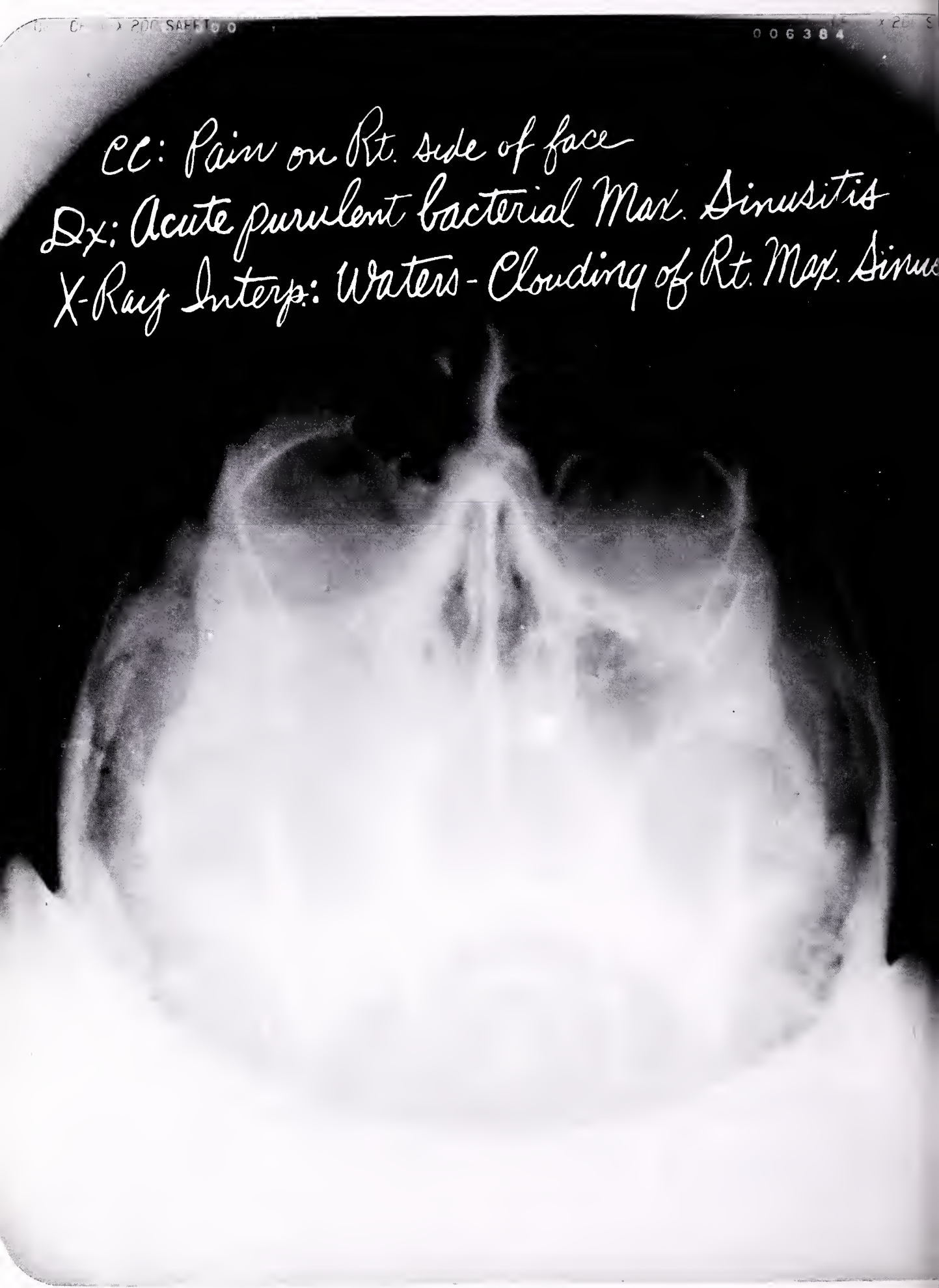


X-ray provided by Manhattan Eye, Ear and Throat Hospital

There are many frustrations in treating acute sinusitis. Cleocin manages most of the bacterial ones.

Inadequate drainage, chronic rhinitis, allergy, exposure to temperature extremes, and other factors can delay recovery from acute sinusitis.

It's helpful to have an antibiotic like Cleocin HCl (clindamycin HCl hydrate, Upjohn) that can take care of most of the gram-positive bacterial problems related to the disease.

As one study* of 52 outpatients showed, acute maxillary sinusitis was associated with staphylococci in 50% of the group, with pneumococci in 25%, and with streptococci and various other organisms (chiefly gram-negative) in the remainder. Significantly, one-half of these staphylococcal infections were resistant to both penicillin and tetracycline (all were sensitive to erythromycin and chloramphenicol). Although not a part of this study, many other clinical and bacteriologic reports[1] have shown that such gram-positive bacteria, which most often are associated with acute sinusitis, are usually susceptible to Cleocin.

Can be taken before, with, or after meals

The total absorption of Cleocin is virtually unaffected by the presence of food in the GI tract.[1] Cleocin thus can be administered as prescribed without interfering with the patient's mealtimes.

Useful in patients hypersensitive to penicillin

Cleocin's chemical structure bears no relationship to penicillin or the cephalosporins. Cleocin therefore may be especially useful in patients with acute sinusitis who report a history of hypersensitivity to these antibiotics. Although hypersensitivity reactions have been uncommon with Cleocin, it should be used cautiously in atopic individuals. Cleocin is not recommended in the lincomycin-sensitive patient.

Please see following page for further prescribing information.

Cleocin® 150 mg capsules HCl

clindamycin HCl hydrate, Upjohn

ynolds, R. C., et al.: Bull. Johns Hopkins Hosp. 114:269, 1964
ata on file, Medical Research Department, The Upjohn Company

©1971 The Upjohn Company

Side effects: In studies of 1,416 patients involving 92 clinical investigators, side effects were reported in 8.2%.[1] Diarrhea or loose stools were noted in 3% of these cases (one patient with bloody stools). In a few instances, diarrhea lasted several days. A slightly higher incidence of diarrhea or loose stools has been reported by some investigators in subsequent studies.

Toxicity: No irreversible hematologic, renal, dermatologic, or neurologic abnormalities have been reported.[1] Transient leukopenia and eosinophilia have been observed. Elevations of alkaline phosphatase and serum transaminases were observed in a few instances. As with other antibiotics, periodic liver function tests and blood counts should be performed during prolonged therapy.

In acute sinusitis and other upper respiratory infections due to susceptible staphylococci, streptococci, and pneumococci.

Cleocin® HCl

clindamycin HCl hydrate, Upjohn

Each preparation contains:	Clindamycin HCl hydrate equivalent to clindamycin base
150 mg Capsules	150 mg
75 mg Capsules	75 mg

Cleocin (clindamycin, Upjohn) is a new semisynthetic antibiotic produced from the parent compound lincomycin and provides more *in vitro* potency, better oral absorption and fewer gastrointestinal side effects than the parent compound.

Cleocin HCl (clindamycin HCl hydrate) is indicated in infections of the upper and lower respirotory tract, skin and soft tissue, and, adjunctively, dental infections caused by gram-positive organisms which are susceptible to its action, particularly streptococci, pneumococci and staphylococci. As with all antibiotics, *in vitro* susceptibility studies should be performed.

CONTRAINDICATIONS: Patients previously found to be hypersensitive to this compound or to lincomycin.

WARNINGS: Safety for use in pregnancy not established. Not indicated in the newborn (infants below 30 doys of age).

PRECAUTIONS: Prescribe with caution in atopic individuals. Perform periodic liver function tests and blood counts during prolonged therapy. The serum half-life in potients with markedly reduced renal function is approximately twice that in normal patients; hemodialysis and peritaneal dialysis do not effectively remove Cleocin from the bload. Therefore, with severe renal insufficiency, determine serum levels of clindamycin periodically and decrease the dose appropriately. Should overgrowth of nonsusceptible organisms—particularly yeasts—occur, take appropriate clinicolly indicated measures.

ADVERSE REACTIONS: Generally well tolerated in clinical efficacy studies. Side effects reported in 8.2% of 1,416 patients. Of the total, 6.9% reported gastrointestinal side effects and 1.3% reported other side effects. Diarrhea or loose stools were reported in 3%. *Gastrointestinal:* Symptoms included abdominol poin, nausea, vomiting ond diarrhea or loose stools. In a few instances, diarrhea lasted for several days; one case of bloody stools was reported. *Hematopoietic:* Transient neutropenia (leukopenia) and eosinophilia have been reported; relationship to theropy is unknown. No irreversible hematologic toxicity has been reported. *Skin and Mucous Membranes:* Skin rash ond urticaria have been reported infrequently. *Hypersensitivity Reactions:* A few cases of hypersensitivity reaction have been reported. If hypersensitivity occurs, discontinue drug and have available the usual agents (epinephrine, corticosteroids, antihistamines) for emergency treatment. *Liver:* Although no direct relationship of Cleocin HCl (clindamycin HCl hydrate) to liver dysfunction has been noted and significance of such change is unknown, transient abnormalities in liver function tests (elevations of alkaline phosphatase and serum transaminases) have been observed in a few instances. Also, abnormal liver function test values at the beginning of therapy have returned to normal during therapy.

DOSAGE AND ADMINISTRATION: *Adults:* Mild to moderately severe infections—150 to 300 mg every 6 hours. Severe infections—300 to 450 mg every 6 haurs.

Children: Mild to moderately severe infections—8 to 16 mg/kg/day (4 to 8 mg/lb/day) divided into three or four equal doses. Severe infections—16 to 20 mg/kg/day (8 to 10 mg/lb/day) divided into three or four equal doses.

Note: With β-hemolytic streptococcal infections, treatment should continue for at least 10 days to diminish the likelihood of subsequent rheumatic fever or glamerulonephritis.

SUPPLIED: *150 mg Capsules*—Bottles of 16's and 100's. *75 mg Capsules*—Bottles of 16's and 100's. *Sensitivity Disks*—2 μg. *Sensitivity Powder*—Vials.

For additional product information, see your Upjohn representative or consult package insert. MED B-4-S (LNU-3) JA71-1565

The Upjohn Company, Kalamazoo, Michigan 49001

Upjohn

National Congress on the Quality of Life March 22-25, 1972 Palmer House/Chicago, Illinois

IMPROVING
The quality of a life.
The spirit of a people.
The future of a nation.

The National Congress on the Quality of Life will focus on these immutable concerns by concentrating on the first stages of life's continuum—maternal and child health from conception through adolescence and young adulthood.

Examining the growth process in terms of human development and human environment, the Congress will address itself to the problems of maternity and the newborn, children in a changing society and the critical years of adolescence.

The program features formal presentations by experts in the medical, social and behavioral sciences, education, law, religion and governmental affairs. Complementing their presentations will be workshops and youth, consumer and professional reactor panels.

Major emphasis will be on developing new programs that will contribute to the richness and depth of life...programs sensitive to the physical, psychological, emotional and social needs of people...programs reflecting a trend toward more multidisciplinary cooperation.

Don't miss this opportunity to participate in the National Congress. Mark your calendar. Complete the form below.

Sponsored by the American Medical Association in cooperation with 20 governmental and volunteer agencies.

Return form to:

Effie O. Ellis, M.D.
American Medical Association
535 N. Dearborn Street
Chicago, Illinois 60610

Please forward the program for the National Congress on the Quality of Life to:

Name _____

Affiliation _____

Address _____

City _____ State _____ Zip Code _____

86th Annual Meeting
NEW MEXICO MEDICAL SOCIETY

La Fonda, Santa Fe, New Mexico

May 3-5, 1972

Tuesday, May 2

2:00 P.M. Council Meeting

Wednesday, May 3

9:00 A.M. Orientation Course for New Members

2:00 P.M. First House of Delegates Meeting
Reference Committee Hearings

6:30 P.M. Reception

7:30 P.M. New Mexico Medical Political Action Committee Banquet
Speaker: Congressman Harold Runnels

FIRST CLINICAL SESSION

Thursday, May 4

Credit Hours have been applied for to the New Mexico Board of Medical Examiners and the AAFP for all three Scientific Sessions. There will be a $10.00 registration fee for each Clinical Session.

THE RATIONAL USE OF ANTIBIOTICS

9:00 A.M. **"Antibiotics 1972—A Survey"**
Darwin L. Palmer, MD, Assistant Professor of Medicine, University of New Mexico School of Medicine
William P. Reed, MD, Instructor, Department of Medicine, University of New Mexico School of Medicine

"The Presumptive Use of Antibiotics"
U. G. Hodgin, Jr., MD, Private Practice of Internal Medicine, Albuquerque

"Risks Inherent in Antibiotic Usage"
Alexander L. Kisch, MD, Associate Professor of Medicine, University of New Mexico School of Medicine

"Recent Developments in Antimicrobial Therapy and a Look at the Future"
Theodore Eickhoff, MD, Associate Professor of Internal Medicine, University of Colorado Medical Center

Panel Discussion
Theodore Eickhoff, MD; Alexander L. Kisch, MD; Darwin L. Palmer, MD; William P. Reed, MD; U. G. Hodgin, Jr., MD

SECOND CLINICAL SESSION
SYMPOSIUM ON SHOCK

1:30 P.M. **"Definitions, Types of Shock"**
Jerry M. Shuck, MD, Associate Professor of Surgery, Director, Burn and Trauma Unit, University of New Mexico School of Medicine

"Resuscitation of Hypovolemic Shock"
Charles Baxter, MD, Professor of Surgery, University of Texas, Southwestern Medical School, Dallas, Texas

"Cardiogenic Shock"
Richard Lueker, MD, formerly Chief of Cardiology, Department of Medicine, University of New Mexico School of Medicine; currently in private practice.

"Septic Shock"
Alexander Kisch, MD, Associate Professor of Medicine, University of New Mexico School of Medicine

"Special Problems in Shock: Pulmonary, Renal, Ulcer"
Charles Baxter, MD, Dallas, Texas

"Therapy for Shock"
Drs. Baxter, Lueker, Kisch and Shuck

6:30 P.M. Reception

7:30 P.M. Banquet

8:30 P.M. "The Company", a singing group which has been scheduled again by popular request

THIRD CLINICAL SESSION

Friday, May 5

NUTRITION IN PRACTICE

9:00 A.M. **"Progress Report on the Nutrition Program in New Mexico"**
William M. Michener, MD, Associate Professor and Assistant Chairman, Department of Pediatrics, University of New Mexico School of Medicine

"Diets in Practice"
Laurie Benz, MD, Private Practice of Internal Medicine, Santa Fe

"The Use of Parenteral Nutrition in Practice"
William M. Michener, MD, Albuquerque

"What is the Future of Nutrition?"
Milton Nichaman, Director, Nutrition Program, Center of Disease Control, Atlanta, Georgia

2:00 P.M. Second House of Delegates Meeting

6:00 P.M. Meetings of all Specialty Society Groups

When irritable colon feels like this

...in the presence of spasm or hypermotility, gas distension and discomfort, **KINESED®** provides more complete relief:

- ☐ **belladonna alkaloids—for the hyperactive bowel**
- ☐ **simethicone—for accompanying distension and pain due to gas**
- ☐ **phenobarbital—for associated anxiety and tension**

Composition: Each chewable, fruit-flavored, scored tablet contains: 16 mg. phenobarbital (warning: may be habit-forming); 0.1 mg. hyoscyamine sulfate; 0.02 mg. atropine sulfate; 0.007 mg. scopolamine hydrobromide; 40 mg. simethicone.
Contraindications: Hypersensitivity to barbiturates or belladonna alkaloids, glaucoma, advanced renal or hepatic disease.
Precautions: Administer with caution to patients with incipient glaucoma, bladder neck obstruction or urinary bladder atony. Prolonged use of barbiturates may be habit-forming.
Side effects: Blurred vision, dry mouth, dysuria, and other atropine-like side effects may occur at high doses, but are only rarely noted at recommended dosages.
Dosage: Adults: One or two tablets three or four times daily. Dosage can be adjusted depending on diagnosis and severity of symptoms. Children 2 to 12 years: One half or one tablet three or four times daily. Tablets may be chewed or swallowed with liquids.

STUART PHARMACEUTICALS | Pasadena, California 91109 | Division of ATLAS CHEMICAL INDUSTRIES, INC.

(from the Greek **kinetikos**,
to move,
and the Latin **sedatus**,
to calm)

KINESED®

antispasmodic/sedative/antiflatulent

Spring peeper (tree frog, *Hyla crucifer*): this small amphibian can expand its throat membrane with air until it is twice the size of its head.

INTRODUCING
Meltrol-50™

the **new** USV brand of phenformin HCl

Meltrol-50 (phenformin HCl)
50 mg. timed-disintegration capsules

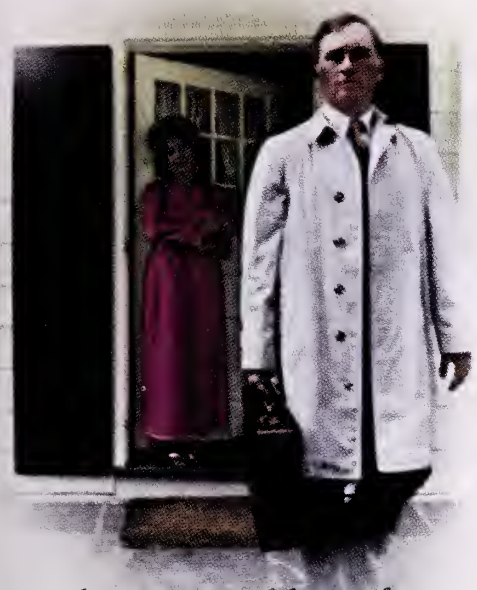
also Meltrol-100™
(100 mg. timed-disintegration capsules)

Meltrol-25™ (25 mg. tablets)

USV PHARMACEUTICAL CORP., Tuckahoe, N.Y. 10707

FROM THE NEW USV

When he goes back to work, will his old tensions go back with him?



When it's mandatory to keep the post-coronary patient calm, consider Valium® (diazepam).

Although he's promised to take it easy back on the job, you know he's going back to the same stressful circumstances that may have contributed to his hospitalization. Your prescription for Valium can calm him. Lessened anxiety and tension can help in decelerating his former pace. During the period of readjustment Valium helps quiet undue anxiety.

For moderate states of psychic tension, 5-mg or 2-mg Valium tablets *t.i.d.* or *q.i.d.* can usually provide reliable relief. For severe tension/anxiety states, the 10-mg tablets often produce desired results.

The most commonly reported side effects are drowsiness, ataxia, and fatigue. Until individual response is determined, caution patient against driving or operating dangerous machinery.

Valium® (diazepam)

For the tense cardiac patient who must be kept calm

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation; tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

Dosage: Individualize for maximum beneficial effect. *Adults:* Tension, anxiety and psychoneurotic states, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed; adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d.; adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. *Geriatric or debilitated patients:* 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) *Children:* 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

Supplied: Valium® (diazepam) Tablets, 2 mg, 5 mg and 10 mg; bottles of 100 and 500. All strengths also available in Tel-E-Dose™ packages of 1000.

ROCHE

Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

G.I. problems making her a fixture in your office?

'Milpath' can cut down her complaints by helping to control: bloating/cramping/pain/'nervous stomach' when aggravated by anxiety and tension

For most patients:	*When spasm is severe:*
'Milpath'-400 (meprobamate 400 mg + tridihexethyl chloride 25 mg)	'Milpath'-200 (meprobamate 200 mg + tridihexethyl chloride 25 mg)
Usual adult dose: *One* tablet t.i.d. at mealtimes, and two tablets at bedtime.	Usual adult dose: *Two* tablets t.i.d. at mealtimes, and two tablets at bedtime.

INDICATIONS: Useful as adjunctive therapy in peptic ulcer and in the irritable bowel syndrome (irritable colon, spastic colon, mucous colitis, and functional gastrointestinal disorders), especially when accompanied by anxiety or tension.

CONTRAINDICATIONS: *Tridihexethyl chloride:* Previous allergic or idiosyncratic reactions to tridihexethyl chloride or related compounds; urinary bladder-neck obstructions (e.g., prostatic obstructions due to hypertrophy); pyloric obstructions because of reduced motility and tonus; organic cardiospasm (megaesophagus); glaucoma; possibly in stenosing gastric or duodenal ulcers with significant gastric retention. **Meprobamate:** Acute intermittent porphyria and allergic or idiosyncratic reactions to meprobamate or related compounds such as carisoprodol, mebutamate, tybamate, carbromal.

WARNINGS: Meprobamate: *Drug Dependence:* Physical and psychological dependence and abuse have occurred. Chronic intoxication, from prolonged use and usually greater than recommended doses, leads to ataxia, slurred speech, vertigo. Carefully supervise dose and amounts prescribed, and avoid prolonged use, especially in alcoholics and addiction-prone persons. Sudden withdrawal after prolonged and excessive use may precipitate recurrence of pre-existing symptoms (e.g., anxiety, anorexia, insomnia) or withdrawal reactions (e.g., vomiting, ataxia, tremors, muscle twitching, confusional states, hallucinosis; rarely convulsive seizures, more likely in persons with CNS damage or pre-existent or latent convulsive disorders). Therefore, reduce dosage gradually (1-2 weeks) or substitute a short-acting barbiturate, then gradually withdraw. *Potentially Hazardous Tasks:* Driving a motor vehicle or operating machinery. *Additive Effects:* Possible additive effects between meprobamate, alcohol, and other CNS depressants or psychotropic drugs. *Pregnancy and Lactation:* Safe use not established; weigh potential benefits against potential hazards in pregnancy, nursing mothers, or women of childbearing potential. Animal data at five times the maximum recommended human dose show reduction in litter size due to resorption. Meprobamate appears in umbilical cord blood at or near maternal plasma levels, and in breast milk at levels 2-4 times that of maternal plasma.

PRECAUTIONS: Tridihexethyl chloride: Use cautiously in elderly males (possible prostatic hypertrophy). **Meprobamate:** To avoid oversedation, use lowest effective dose, particularly in elderly and/or debilitated patients. Consider possibility of suicide attempts; dispense least amount of drug feasible at any one time. To avoid excess accumulation, use caution in patients with compromised liver or kidney function. Meprobamate may precipitate seizures in epileptics.

ADVERSE REACTIONS: Following reactions to components may occur with 'Milpath' (meprobamate + tridihexethyl chloride). **Tridihexethyl chloride:** Severe effects rare at recommended dosage. Anticholinergic effects: dry mouth (fairly frequent at oral doses of 100 mg), constipation or "bloated" feeling. Possible: tachycardia, bradycardia, dilated pupils, increased ocular tension, weakness, nausea, vomiting, headache, drowsiness, urinary hesitancy or retention, dizziness. **Meprobamate:** *Central Nervous System:* Drowsiness, ataxia, dizziness, slurred speech, headache, vertigo, weakness, paresthesias, impairment of visual accommodation, euphoria, overstimulation, paradoxical excitement, fast EEG activity. *Gastrointestinal:* Nausea, vomiting, diarrhea. *Cardiovascular:* Palpitations, tachycardia, various forms of arrhythmia, transient ECG changes, syncope; also hypotensive crises (including one fatal case). *Allergic or Idiosyncratic:* Usually after 1-4 doses. Milder reactions: itchy, urticarial, or erythematous maculopapular rash (generalized or confined to groin). Others: leukopenia, acute nonthrombocytopenic purpura, petechiae, ecchymoses, eosinophilia, peripheral edema, adenopathy, fever, fixed drug eruption with cross reaction to carisoprodol, and cross sensitivity between meprobamate/mebutamate and meprobamate/carbromal. More severe, rare hypersensitivity: hyperpyrexia, chills, angioneurotic edema, bronchospasm, oliguria, anuria, anaphylaxis, erythema multiforme, exfoliative dermatitis, stomatitis, proctitis, Stevens-Johnson syndrome, bullous dermatitis (one fatal case after meprobamate plus prednisolone). Stop drug, treat symptomatically (e.g., possible use of epinephrine, antihistamines, and in severe cases corticosteroids). *Hematologic:* Agranulocytosis and aplastic anemia (rarely fatal), but no causal relationship established. Rarely, thrombocytopenic purpura. *Other:* Exacerbation of porphyric symptoms.

USUAL ADULT DOSAGE: One 'Milpath'-400 (meprobamate 400 mg + tridihexethyl chloride 25 mg) tablet three times a day at mealtimes and 2 at bedtime. For greater anticholinergic effect, 2 'Milpath'-200 (meprobamate 200 mg + tridihexethyl chloride 25 mg) three times a day at mealtimes and 2 at bedtime. Meprobamate dose should not exceed 2400 mg daily.

Not for use in children under age 12.

OVERDOSAGE: No cases reported with 'Milpath' (meprobamate + tridihexethyl chloride); information on components follows. **Tridihexethyl chloride:** Acute overdosage can produce dry mouth, difficulty swallowing, marked thirst; blurred vision, photophobia; flushed, hot, dry skin, rash; hyperthermia; palpitations, tachycardia with weak pulse, elevated blood pressure; urinary urgency with difficulty in micturition; abdominal distention; restlessness, confusion, delirium and other signs suggesting acute organic psychosis. Empty stomach after administration of Universal Antidote and treat symptomatically as indicated. **Meprobamate:** Suicidal attempts with meprobamate, alone or with alcohol or other CNS depressants or psychotropic drugs, have produced drowsiness, lethargy, stupor, ataxia, coma, shock, vasomotor and respiratory collapse, and death. Empty stomach, treat symptomatically; cautiously give respiratory assistance, CNS stimulants, pressor agents as needed. Meprobamate is metabolized in the liver and excreted by the kidney. Diuresis and dialysis have been used successfully. Carefully monitor urinary output; avoid overhydration; observe for possible relapse due to incomplete gastric emptying and delayed absorption.

REV 8/71(a)

WALLACE PHARMACEUTICALS, Cranbury, N.J. 08512

Relaxes smooth muscle and psyche/ **Milpath**®

(meprobamate+tridihexethyl chloride)

New Service Available to Our Readers

The MEDLARS Center at the Pacific Northwest Regional Health Sciences Library is pleased to announce a new service to its patrons which includes, of course, readers of the *Rocky Mountain Medical Journal*. The Center now has local telephone access to MEDLINE, the on-line system for retrieval of citations to the biomedical literature which is being established at the National Library of Medicine. The MEDLINE data base is approximately 130,000 citations from 239 of the most important biomedical journals indexed for MEDLARS from January 1969 to date. The base is being expanded to over 300,000 citations in about 1,000 journals. This should be accomplished within a month or two.

The Pacific Northwest Regional Health Sciences Library Center has had access for over a year to AIM-TWX, an experimental on-line system with a small data base of 100 English language journals. However, the cost of long distance telephone calls to Santa Monica, California, has restricted the use and promotion of AIM-TWX.

Now that there is access by means of local telephone calls to the large data base of MEDLINE, the MEDLARS Center wishes to encourage users of the Pacific Northwest Regional Health Sciences Library to request bibliographic searches. Unless a retrieval is large, citations are obtained immediately. If there are too many citations, an off-line printout can be requested. It is received by air mail from the National Library of Medicine, usually in two or three days.

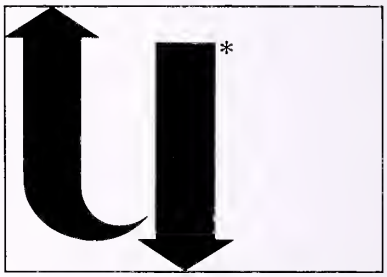
Searches for articles by an individual author or on single subjects (such as Diabetes Mellitus), which are not permissible for ordinary MEDLARS searches, can be done by MEDLINE, in addition to the usual AIM-TWX and some MEDLARS requests.

The Center will continue to process MEDLARS searches as well, for an indefinite period. The AIM-TWX system will also be available until December 1972.

Both MEDLINE and AIM-TWX were developed by Systems Development Corporation for the Library Operations Office and the Lister Hill National Center for Biomedical Communications at the National Library of Medicine.

At present, the computer is available for use from 8:00 a.m. to 12:00 p.m. Monday through Friday. This amount of time will be extended later. Requests may be submitted by telephone, letter, or the MEDLARS request form. The telephone number is (206) 543-5530. Letters and request forms should be sent to: MEDLARS Center, Pacific Northwest Regional Health Sciences Library, University of Washington, Seattle, Washington 98195.

Keeping quality up



and cost down

For over 85 years The Upjohn Company has been noted for the quality of its products.

Although methods of manufacturing have advanced far beyond the imagination of the founders of Upjohn, one thing hasn't changed. And that is the rigid quality controls Upjohn imposes upon itself to continue to bring you the highest quality products.

To lower costs while maintaining quality is the cornerstone of the Upjohn philosophy that guides the manufacture of such low-priced products as:

erythromycin	**E-Mycin®**
tetracycline	**Panmycin®**
penicillin VK	**Uticillin® VK**
prednisone	**Deltasone®**
ethinyl estradiol	**Feminone®**
fluorometholone	**Oxylone®**
reserpine	**Reserpoid®**

Upjohn

THE UPJOHN COMPANY
KALAMAZOO, MICHIGAN 49001

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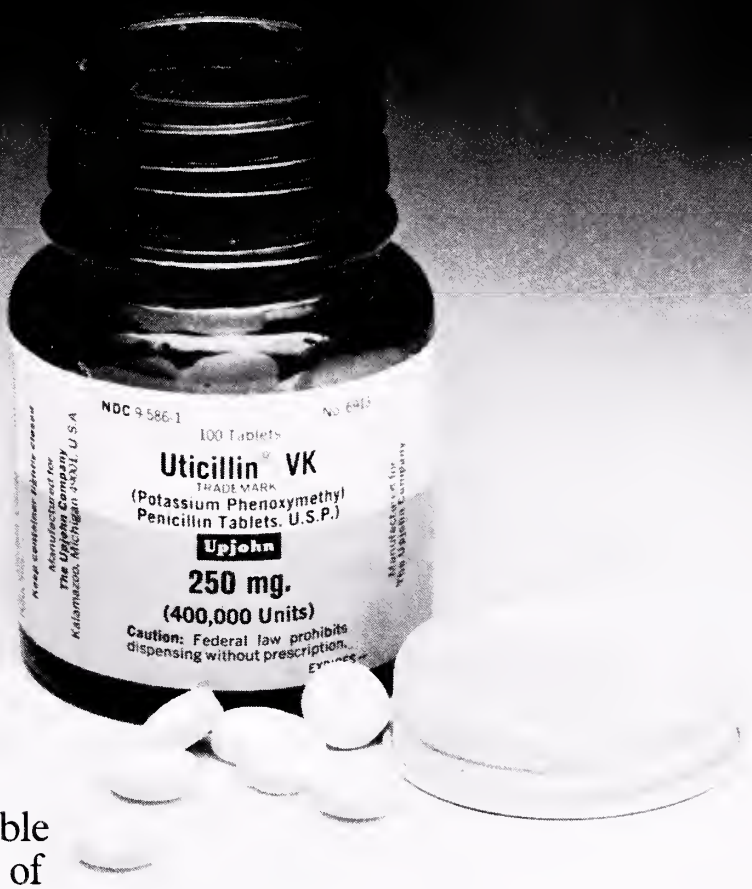
*TRADEMARK

JA 72-1959-6

Upjohn's low-priced penicillin VK



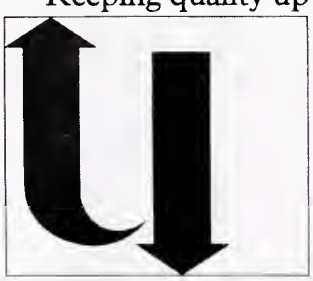
Upjohn has been able to reduce the price of potassium phenoxymethyl penicillin without reducing the quality you expect from an Upjohn product.

Uticillin® VK

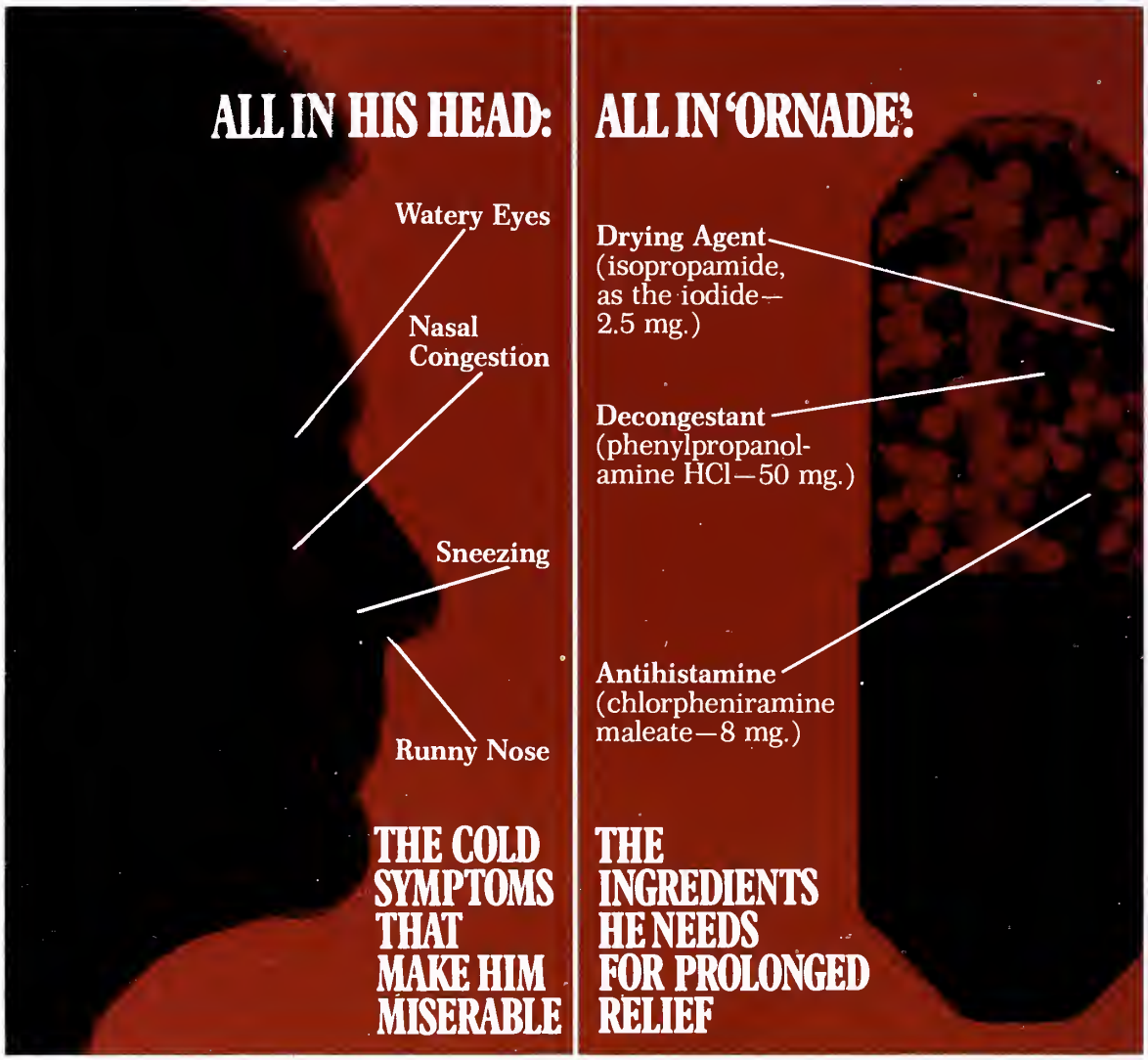
(potassium phenoxymethyl penicillin, U.S.P., Upjohn)

Available in 250 and 500 mg tablets;
250 mg/5 ml and 125 mg/5 ml flavored granules for oral suspension.

Keeping quality up



and cost down



Before prescribing, see complete prescribing information in SK&F literature or *PDR*.

Indications: Upper respiratory congestion and hypersecretion associated with: the common cold; acute and chronic sinusitis; vasomotor rhinitis; allergic rhinitis (hay fever, "rose fever," etc.).

Contraindications: Hypersensitivity to any component; concurrent MAO inhibitor therapy; severe hypertension; bronchial asthma; coronary artery disease; stenosing peptic ulcer; pyloroduodenal or bladder neck obstruction. Children under 6.

Warnings: Advise vehicle or machine operators of possible drowsiness. Warn patients of possible additive effects with alcohol and other CNS depressants.

Usage in Pregnancy: In pregnancy, nursing mothers and women who might bear children, weigh potential benefits against hazards. Inhibition of lactation may occur.

Effect on PBI Determination and I^{131} Uptake: Isopropamide iodide may alter PBI test results and will suppress I^{131} uptake. Substitute thyroid tests unaffected by exogenous iodides.

Precautions: Use cautiously in persons with cardiovascular disease, glaucoma, prostatic hypertrophy, hyperthyroidism.

Adverse Reactions: Drowsiness, excessive dryness of nose, throat or mouth; nervousness; or insomnia. Also, nausea, vomiting, epigastric distress, diarrhea, rash, dizziness, weakness, chest tightness, angina pain, abdominal pain, irritability, palpitation, headache, incoordination, tremor, dysuria, difficulty in urination, thrombocytopenia, leukopenia, convulsions, hypertension, hypotension, anorexia, constipation, visual disturbances, iodine toxicity (acne, parotitis).

Supplied: Bottles of 50 capsules.

SK&F *Smith Kline & French Laboratories*

Trademark

ORNADE® SPANSULE®

brand of sustained release capsules

Each capsule contains 8 mg. of Teldrin®(brand of chlorpheniramine maleate); 50 mg. of phenylpropanolamine hydrochloride; 2.5 mg. of isopropamide, as the iodide.

UNCOMMON RELIEF FOR COLD SYMPTOMS

The girth control pill

Tepanil® Ten-tab®

(continuous release form)

(diethylpropion hydrochloride, N.F.)

When girth gets out of control, TEPANIL can provide sound support for the weight control program you recommend. TEPANIL reduces the appetite—patients enjoy food but eat less. Weight loss is significant—gradual—yet there is a relatively low incidence of CNS stimulation.

Contraindications: Concurrently with MAO inhibitors, in patients hypersensitive to this drug; in emotionally unstable patients susceptible to drug abuse.

Warning: Although generally safer than the amphetamines, use with great caution in patients with severe hypertension or severe cardiovascular disease. Do not use during first trimester of pregnancy unless potential benefits outweigh potential risks.

Adverse Reactions: Rarely severe enough to require discontinuation of therapy, unpleasant symptoms with diethylpropion hydrochloride have been reported to occur in relatively low incidence. As is characteristic of sympathomimetic agents, it may occasionally cause *CNS effects* such as insomnia, nervousness, dizziness, anxiety, and jitteriness. In contrast, CNS depression has been reported. In a few epileptics an increase in convulsive episodes has been reported. Sympathomimetic *cardiovascular effects* reported include ones such as tachycardia, precordial pain, arrhythmia, palpitation, and increased blood pressure. One published report described T-wave changes in the ECG of a healthy young male after ingestion of diethylpropion hydrochloride; this was an isolated experience, which has not been reported by others. *Allergic phenomena* reported include such conditions as rash, urticaria, ecchymosis, and erythema. *Gastrointestinal effects* such as diarrhea, constipation, nausea, vomiting, and abdominal discomfort have been reported. Specific reports on the hematopoietic system include two each of bone marrow depression, agranulocytosis, and leukopenia. A variety of miscellaneous adverse reactions have been reported by physicians. These include complaints such as dry mouth, headache, dyspnea, menstrual upset, hair loss, muscle pain, decreased libido, dysuria, and polyuria.

Convenience of two dosage forms: TEPANIL Ten-tab tablets: One 75 mg. tablet daily, swallowed whole, in midmorning (10 a.m.); TEPANIL: One 25 mg. tablet three times daily, one hour before meals. If desired, an additional tablet may be given in midevening to overcome night hunger. Use in children under 12 years of age is not recommended.

1-3325 (2876)

Merrell

MERRELL-NATIONAL LABORATORIES
Division of Richardson-Merrell Inc.
Cincinnati, Ohio 45215

Painful night leg cramps...

unwelcome bedfellow for any patient– including those with arthritis, diabetes or PVD

- ☐ Prevents painful night leg cramps
- ☐ Permits restful sleep
- ☐ Provides simple convenient dosage — usually just one tablet at bedtime

Prescribing Information — Composition: Each white, beveled, compressed tablet contains: Quinine sulfate, 260 mg., Aminophylline, 195 mg. **Indications:** For the prevention and treatment of nocturnal and recumbency leg muscle cramps, including those associated with arthritis, diabetes, varicose veins, thrombophlebitis, arteriosclerosis and static foot deformities. **Contraindications:** Quinamm is contraindicated in pregnancy because of its quinine content. **Precautions/Adverse Reactions:** Aminophylline may produce intestinal cramps in some instances, and quinine may produce symptoms of cinchonism, such as tinnitus, dizziness, and gastrointestinal disturbance. Discontinue use if ringing in the ears, deafness, skin rash, or visual disturbances occur. **Dosage:** One tablet upon retiring. Where necessary, dosage may be increased to one tablet following the evening meal and one tablet upon retiring. **Supplied:** Bottles of 100 and 500 tablets.

Merrell

MERRELL-NATIONAL LABORATORIES 1-3508(3050)
Division of Richardson-Merrell Inc.
Cincinnati, Ohio 45215

Trademark: Quinamm

Quinamm

(quinine sulfate 260 mg., aminophylline 195 mg.)

Specific therapy for night leg cramps.

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ROCHE

Widowed and alone
(with irritable colon syndrome)

Loss of a loved one. Loneliness. Job insecurity. The high correlation between stress factors in a patient's life and irritable colon syndrome is a matter of clinical experience.

Deal with the stress factor

Drug therapy for these patients might therefore be expected to do two things:
(1) allay anxiety associated with the irritable colon syndrome, and
(2) relax colonic spasm while checking hypermotility.
These are precisely the actions that define the effect of Librax.®

Librax: more than an antispasmodic

Librax is the only drug that delivers the antianxiety action of Librium® (chlordiazepoxide HCl) plus the dependable antisecretory/antispasmodic action of Quarzan® (clidinium Br). The antisecretory/antispasmodic component helps control gastrointestinal hypermotility and spasm—the immediate cause of the patient's complaint. At the same time, the action of Librium helps ease the anxiety that may have triggered the G.I. distress in the first place.

1 or 2 capsules, 3 or 4 times daily

The dosage of Librax should be adjusted to achieve optimum individual response—within the range of 1 or 2 capsules, 3 or 4 times daily. In most cases, a satisfactory effect is usually obtained with 1 capsule before each meal and 2 at bedtime. Librax: #60, sig. 1 *a.c.* and 2 *h.s.*

Before prescribing, please consult complete product information, a summary which follows:

Indications: Indicated as adjunctive therapy to control emotional and somatic factors in gastrointestinal disorders.

Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (e.g., excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

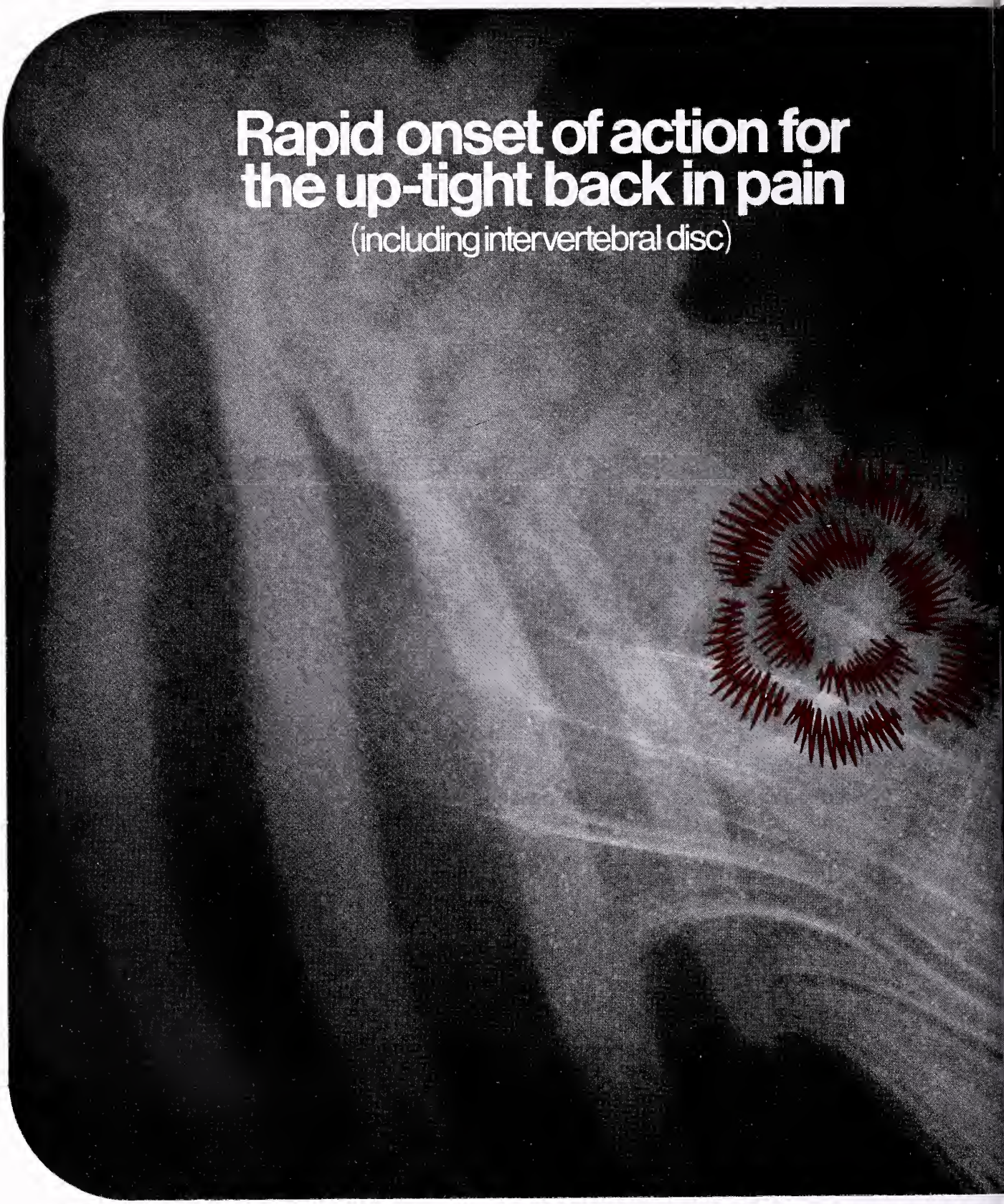
Adverse Reactions: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

As adjunctive therapy Dual-action Librax®

Each capsule contains
5 mg chlordiazepoxide HCl
and 2.5 mg clidinium Br.

Calms anxiety, calms the G.I. tract



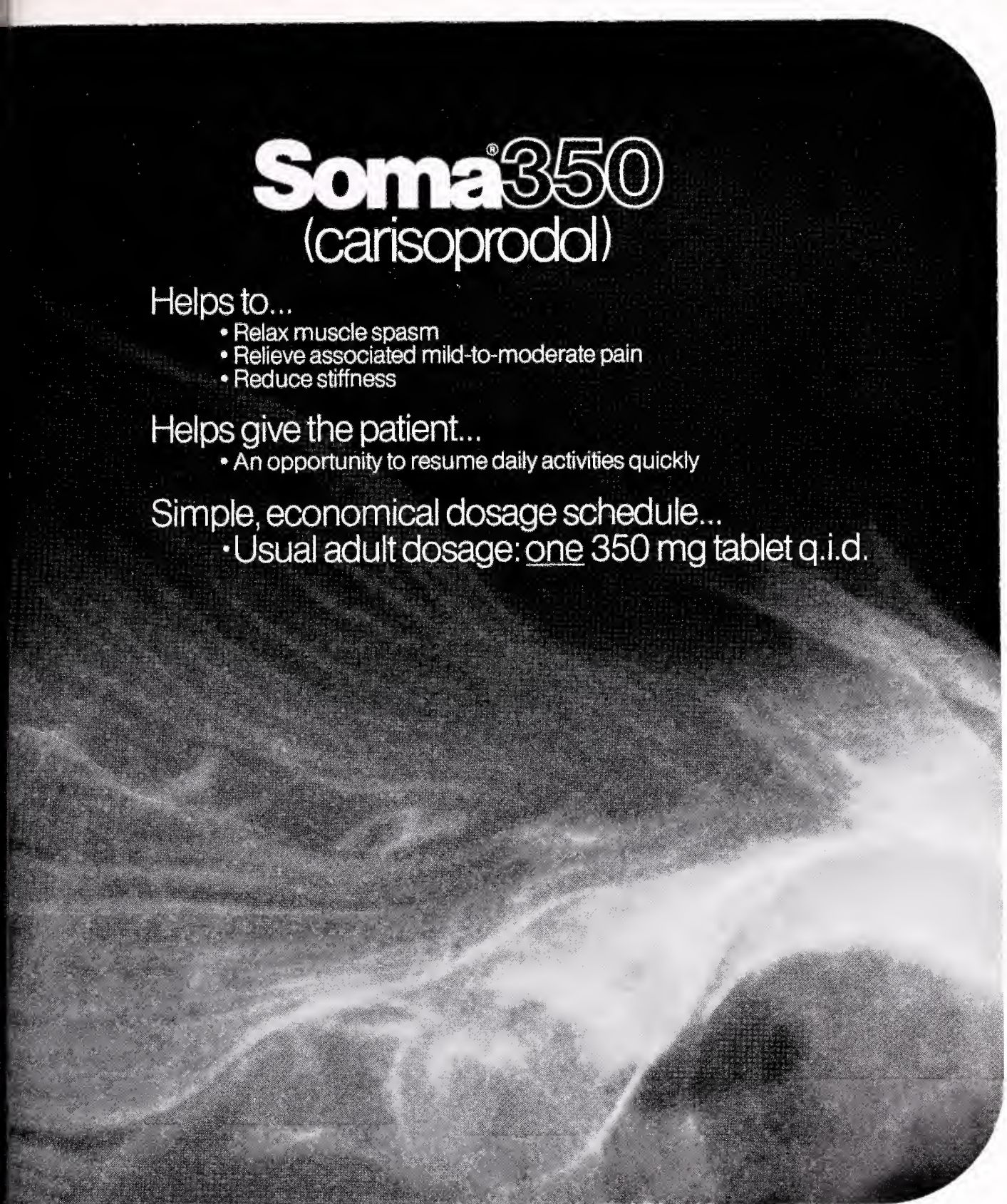
Indications: For symptomatic relief in conditions characterized by skeletal muscle spasm and mild to moderate pain.
Contraindications: Acute intermittent porphyria and allergic or idiosyncratic reactions to carisoprodol or related compounds such as meprobamate, mebutamate, tybamate.
Warnings: *Idiosyncratic Reactions:* Rarely, first dose has been followed by extreme weakness, transient quadriplegia, dizziness, ataxia, temporary vision loss, diplopia, mydriasis, dysarthria, agitation, euphoria, confusion, disorientation. Symptoms usually subside during the next several hours. Supportive and symptomatic therapy, including hospitalization, may be necessary. *Pregnancy and Lactation:* Safe use not established; weigh potential benefits against potential hazards in pregnancy, nursing mothers, or women of childbearing potential. *Children Under Five:* Drug not recommended. *Potentially Hazardous Tasks:* Driving a motor vehicle or operating machinery. *Additive Effects:* Possible additive effects between carisoprodol, alcohol, and other CNS depressants or psychotropic drugs. *Drug Dependence:* Use cautiously in addiction-prone patients.
Precautions: To avoid excess accumulation, use caution in patients with compromised liver or kidney function.
Adverse Reactions: *Central Nervous System:* Drowsiness, dizziness, vertigo, ataxia, tremor, agitation, irritability, headache, depressive reactions, syncope, insomnia. *Allergic or Idiosyncratic:* Usually seen after 1-4 doses in patients not previously exposed, e.g., rash, erythema multiforme, pruritus, eosinophilia, fixed drug

Soma® 350
(carisoprodol)

Helps to...
- Relax muscle spasm
- Relieve associated mild-to-moderate pain
- Reduce stiffness

Helps give the patient...
- An opportunity to resume daily activities quickly

Simple, economical dosage schedule...
- Usual adult dosage: one 350 mg tablet q.i.d.



eruption with cross reaction to meprobamate. More severe manifestations: asthma, fever, weakness, dizziness, angioneurotic edema, smarting eyes, hypotension, anaphylactoid shock. Stop drug, treat symptomatically (e.g., possible use of epinephrine, antihistamines, and in severe cases corticosteroids). *Cardiovascular:* Tachycardia, postural hypotension, facial flushing. *Gastrointestinal:* Nausea, vomiting, hiccup, epigastric distress. *Hematologic:* Leukopenia and pancytopenia (on carisoprodol plus other drugs).

Usual Adult Dosage: One 350 mg tablet three times daily and at bedtime.

Overdosage: Has produced stupor, coma, shock, respiratory depression, and, very rarely, death. Overdosage of carisoprodol plus alcohol or other CNS depressants or psychotropic drugs can be additive. Empty stomach, treat symptomatically; cautiously give respiratory assistance, CNS stimulants, pressor agents as needed. Carisoprodol is metabolized in the liver and excreted by the kidney. Diuresis and dialysis have been used successfully with related drug meprobamate. Carefully monitor urinary output; avoid overhydration; observe for possible relapse due to incomplete gastric emptying and delayed absorption. REV. 10/71

WALLACE PHARMACEUTICALS /Cranbury, N.J. 08512

STANFORD UNIVERSITY
OFFICE OF POSTGRADUATE MEDICAL EDUCATION
and
THE DIVISION OF IMMUNOLOGY, DEPARTMENT OF MEDICINE
announce a course

CLINICAL IMMUNOLOGY
May 26 and 27, 1972

This course has been designed for physicians who wish to expand their knowledge of practical immunology. The program emphasizes case presentations and clinical discussions to illustrate basic and applied concepts.

Topics covered include: immunologic deficiency in the immuno-suppressed patient; multiple myeloma, amyloidosis, and monoclonal gammopathy; allergic asthma; glomerulo- and lupus nephritis; viruses and autoimmune disease; extra-articular and vasculitic manifestations of rheumatoid arthritis.

COURSE OUTLINE

Humoral and cellular immunity in relation to immunologic deficiency
- Cellular basis of antibody formation
- Structure and function of immunoglobulins
- Immunologic deficiency syndromes: agammaglobulinemia, the immuno-suppressed patient

The clinical manifestations of plasma cell neoplasia
- Myeloma proteins—laboratory methods for identification and quantitation
- Amyloidosis—**case presentation and discussion**

The role of IgE in reaginic hypersensitivity
- Mechanisms of reaginic hypersensitivity
- Allergic asthma—**case presentation and discussion**

Antigen-antibody complexes in clinical states
- Pathogenesis of antigen-antibody complex-induced tissue injury
- Lupus nephritis—**case presentation with a discussion** of autoantibodies to assess course and guide management
- The role of viruses and Australia antigen in antigen-antibody complex disease

The extra-articular and vasulitic manifestations of rheumatoid arthritis
- Rheumatoid lung disease, rheumatoid vasculitis—**case presentations and discussion**

VISITING FACULTY

Charles G. Cochrane, M.D., Member, Department of Experimental Pathology, Scripps Clinic and Research Foundation, La Jolla

Michael B. A. Oldstone, M.D., Associate Member, Department of Experimental Pathology, Scripps Clinic and Research Foundation, La Jolla

STANFORD UNIVERSITY SCHOOL OF MEDICINE FACULTY

James F. Fries, M.D., Assistant Professor of Medicine (Immunology)

Halsted R. Holman, M.D., Berthold and Belle N. Guggenhime Professor of Medicine

Hugh O. McDevitt, M.D., Associate Professor of Medicine (Immunology) and Head, Division of Immunology

Jack S. Remington, M.D., Associate Professor of Medicine (Infectious Diseases)

Samuel Strober, M.D., Instructor in Medicine (Immunology)

Abbo I. Terr, M.D., Clinical Assaciate Professor af Medicine (Immunology) and Chief of the Allergy Clinic

Enrollment is open to all practicing physicians, but advance registration is required as attendance is limited. No registrations will be accepted after May 24. The enrollment fee of $80 includes all lectures and luncheon on both days. A refund of $65 will be provided if notice of cancellation is received prior to the first day of the course.

The Postgroduate Medical Education Program of Stanford University School of Medicine is fully accredited by the American Medical Association and is acceptable for Group A credit toward the California Medical Association's Certificate. Credit for this course is 15 hours and a certificate of attendance will be availoble upon request.

APPLICATION FORM

CLINICAL IMMUNOLOGY — **May 26-27, 1972**
Fee: $80

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Please make your check payable to STANFORD UNIVERSITY SCHOOL OF MEDICINE and mail to the Office of Postgraduate Medical Education, Stanford University School of Medicine, M121, Stanford, California 94305.

MEETINGS

Children's Hospital
Denver, Colorado
WORKSHOP ON PEDIATRIC ORTHOPEDICS
April 19, 1972

The guest professor will be Burr H. Curtis, MD, who is medical and executive director of Newington Children's Hospital in Newington, Connecticut.

WORKSHOP ON PEDIATRIC OTOLARYNGOLOGY
May 12, 1972

Guest professor Philip E. Rosenberg, PhD, professor of audiology at Temple University Hospital, will speak on "Pediatric Otologic and Related Communicative Disorders".

Wyoming State Medical Society
1972 ANNUAL MEETING
Jackson Lake Lodge, Moran, Wyoming
August 29-September 1, 1972

For further information, write: Wyoming State Medical Society, P.O. Box 1387, Cheyenne, Wyoming 82001.

Office of Postgraduate Medical Education
University of Colorado School of Medicine
Denver, Colorado

MARRIAGE AND FAMILY RELATIONS
Estes Park, Colorado
June 5-10, 1972

18TH ANNUAL GENERAL PRACTICE REVIEW
Estes Park, Colorado
June 12-17, 1972 (Repeat of January and February Sessions)

58th Annual Postgraduate Course and Summer Convention of the Colorado Ophthalmological Society

OPHTHALMOLOGY
Vail, Colorado
July 3-6, 1972

EIGHTH ANNUAL POSTGRADUATE COURSE IN INTERNAL MEDICINE
Estes Park, Colorado
July 17-20, 1972

PERINATAL MEDICINE
Snowmass-at-Aspen, Colorado
July 17-21, 1972

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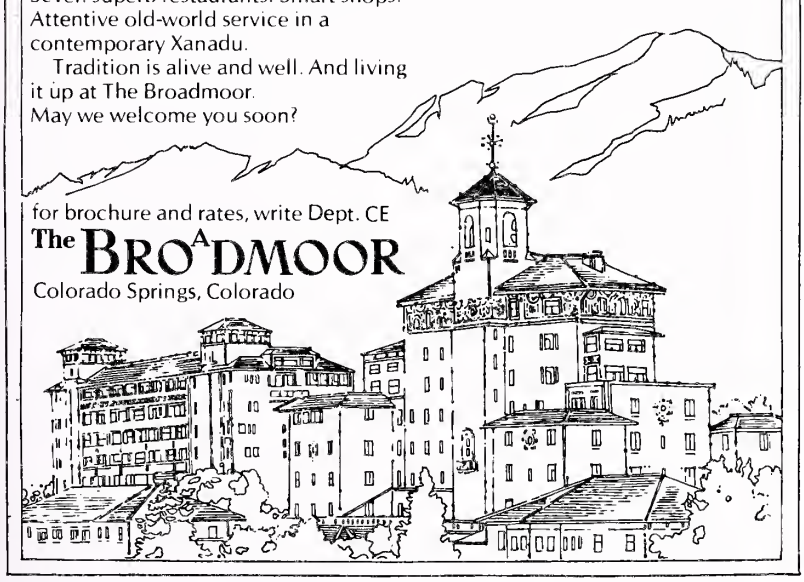
If you're attuned to patrician service and luxury, you might as well be a good sport about it.

The Broadmoor surrounds your leisure with sports. Two great 18-hole championship golf courses. Horses. Winter and water skiing. Swimming pools. Olympic-level all-season ice skating. Tennis.

And, of course, accommodations in the grand manner. Seven superb restaurants. Smart shops. Attentive old-world service in a contemporary Xanadu.

Tradition is alive and well. And living it up at The Broadmoor. May we welcome you soon?

for brochure and rates, write Dept. CE
The BROADMOOR
Colorado Springs, Colorado



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SUMMER COOL.
SOME ARE VERY SPECIAL.

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For your vacation or convention, our 250 luxury units are complemented by superb meeting facilities, heated pool, unique bar, lounge and dining room. Reservations?

Some are waiting for you.

The LODGE at Vail
IN THE BROADMOOR MANNER

Donald L. Elisha, General Manager
Dept. MS, Vail, Colorado 81657

Nevada Division, American Cancer Society
14TH WESTERN CANCER SEMINAR
Flamingo Hotel, Las Vegas, Nevada
April 10-11, 1972

Credit (AAFP): 12 hours.

Fee: $25 for physicians and $15 for dentists; no fee for Armed Forces, interns, and nurses.

For further information, write: American Cancer Society Seminar, 301 South Highland Drive, Las Vegas, Nevada 89106.

American Medical Association
CONGRESS ON ENVIRONMENTAL HEALTH
Biltmore Hotel, Los Angeles, California
April 24-25, 1972

The program features "Human Habitat and Health" and the topics discussed should be of interest to physicians involved in the planning, design, management, and health implications of human settlements.

For further information, write: Miss Diane Dale, Department of Environmental, Public, and Occupational Health, American Medical Association, 535 North Dearborn Street, Chicago, Illinois 60610.

Amercan Academy of Pediatrics
ANNUAL SPRING SESSION
Town and Country Hotel and Convention Center, San Diego, California
April 24-27, 1972

For further information, write: American Academy of Pediatrics, Department of Public Information, 1801 Hinman Avenue, Evanston, Illinois 60204.

NINTH ANNUAL ROCKY MOUNTAIN BIOENGINEERING SYMPOSIUM and TENTH INTERNATIONAL INSTRUMENT SOCIETY OF AMERICA BIOMEDICAL SCIENCES INSTRUMENTATION SYMPOSIUM
University of Nebraska Medical Center, Omaha, Nebraska
May 1-3, 1972

Fee: $20; $1 for students.

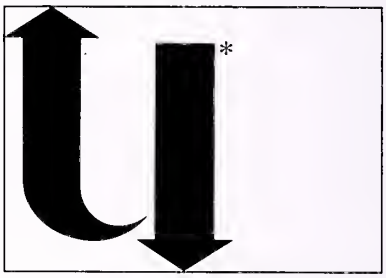
For further information, write: Rocky Mountain Bioengineering Symposium, Inc., P. O. Box 59, USAF Academy, Colorado 80840.

American Cancer Society
NATIONAL CONFERENCE ON CANCER CHEMOTHERAPY
Waldorf-Astoria Hotel, New York, New York
June 1-3, 1972

There is no registration fee, but preregistration is requested.

For further information, write: Sidney L. Arje, MD, Coordinator, National Conference on Cancer Chemotherapy, c/o American Cancer Society, 219 East 42nd Street, New York, New York 10017.

Keeping quality up



and cost down

For over 85 years The Upjohn Company has been noted for the quality of its products.

Although methods of manufacturing have advanced far beyond the imagination of the founders of Upjohn, one thing hasn't changed. And that is the rigid quality controls Upjohn imposes upon itself to continue to bring you the highest quality products.

To lower costs while maintaining quality is the cornerstone of the Upjohn philosophy that guides the manufacture of such low-priced products as:

erythromycin	**E-Mycin®**
tetracycline	**Panmycin®**
penicillin VK	**Uticillin® VK**
prednisone	**Deltasone®**
ethinyl estradiol	**Feminone®**
fluorometholone	**Oxylone®**
reserpine	**Reserpoid®**

Upjohn

THE UPJOHN COMPANY
KALAMAZOO, MICHIGAN 49001

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*TRADEMARK

JA 72-1986-6

Upjohn's low-priced erythromycin

Upjohn has been able to reduce the price of erythromycin without reducing the quality you expect from an Upjohn product.

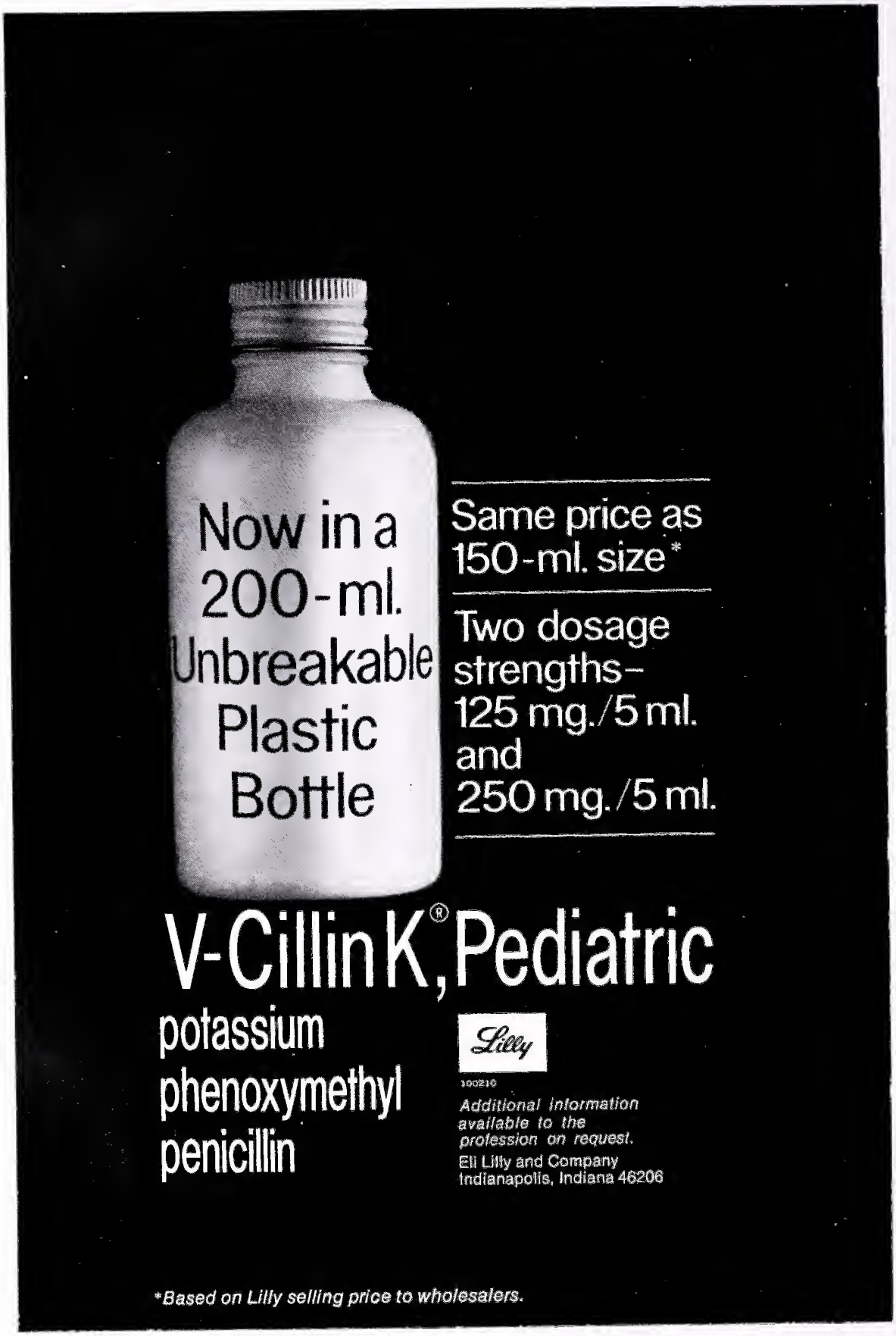
Keeping quality up

E-Mycin®

(erythromycin, Upjohn)

Available in 250 mg tablets

and cost down


Now in a 200-ml. Unbreakable Plastic Bottle
Same price as 150-ml. size*
Two dosage strengths– 125 mg./5 ml. and 250 mg./5 ml.
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potassium phenoxymethyl penicillin
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Additional information available to the profession on request.
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*Based on Lilly selling price to wholesalers.

IN THE PAST FIVE YEARS the inflationary index for hospital care has risen from an average annual increase of 6.9 per cent to 14.8 per cent—and is still rising. A rising barometer portends clear weather in meteorology, but rising cost of hospitalization portends ruination of security for the ill.

Pay Here and Pay Hereafter

A Harvard economics professor is quoted as stating the primary reason for hospital cost inflation is the public's demand for more sophisticated treatment. It is difficult for me to see any marked changes in the treatment of bronchitis, pneumonia, ulcer, etc., except in the sphere of surgery, emergency methods of saving life, ICU, and acute or chronic life threatening disease. Perhaps the real culprit lies somewhere else.

Wages now account for nearly two-thirds of hospital costs. Certainly a laborer is worthy of his hire, but here again I wonder about efficiency and necessity in some instances. The increase in number of health personnel has risen 39 per cent in five years. This implies more people are being used to do what was formerly done by fewer. The reason the dollar is not worth as much as it once was is because people are not working as much as they once did.

It could also imply that more people are being hospitalized. How many more are being hospitalized because that is the only way they can get financial assistance from their health insurance plans? How many more are being hospitalized because of increasing malpractice suits and increasing malpractice insurance costs necessitating "defensive medicine"?

Per capita costs for health insurance has been rising even in the most effective Health Maintenance establishments. For example, Kaiser Permanente throughout the West Coast has raised the cost per capita to $49.50 per month and they charge $2.00 per office visit, $1.00 for prescriptions, and $100.00 for a maternity fee which are all extra. Phase II has permitted another 12.2 per cent increase in premium charges. The Harvard HMO, in which only 15 per cent of the poor or near poor are covered, operated at a loss of $3.1 million in 1971. Is it because of physicians fees? I say no, but physicians are blamed for the debacle. Does the physician have a say in hospitalization costs? Only in his orders for his patient and his medical judgment for time of stay; not the actual cost per diem. Yet the harassment continues by third party, by government, and by the patient.

The practicing physician, only 334,000 in number, knows only medicine and treatment of the ill—not cost accounting, economics, finance, labor arbitration, to say nothing of politics. In the eyes of the propagandists the doctor is the money grubber, Cadillac driver, golfer, and vacationeer. His average 61 hours a week in medical business does not entitle him to net $36,000 per year, yet the skilled plumber working the same hours is entitled to $62,000 per year without overhead. There is a glaring need for physicians to set the record straight.

Who stands to benefit by the rising cost? The Corporate Governing Body and the wholesale suppliers. It might also be that insurance companies have a vested interest. When I asked an insurance company executive, off the record, what the investments of insurance companies were in hospital ownership, he said "only about two per cent". Using this as a base line and comparing it to *Fortune Magazine* May 1971 listing of the declared assets of the 50 largest U.S. insurance companies, the two per cent investment amounts to over $3 billion.

What can we do? Medically we should find the shortcuts available to protect our patients from pauperism. We can use more efficiency in getting a job well done. We can, with UNITY, do the impossible—maintain the quality of American medicine, the highest and best quality in the world. We cannot be all things to all people, but we can provide and be responsible for good medical treatment.

To quote Senator Russell Long at the AMA Clinical Convention November 28, 1971, "We are creating a nation of loafers." His

reference was directed against socialistic programs emanating from the Department of Health, Education and Welfare. In this area cabalism is suspect. Socialistic programs put aside individual responsibility and reward for personal effort. Educational efforts would better be directed to retraining in integrity, honesty, responsibility, and sincere effort. The DHEW is the second biggest spender of the federal tax dollar. I wonder if the DHEW could stand a critical cost accounting and efficiency analysis for quality control and "delivery system".

I think a change of consonant is in order . . . PHEW!!

William D. O'Gorman, MD
President, Nevada State
Medical Association

Peer Review for Some or for All

ANY ORGANIZATION WHICH is unwilling to submit to internal audit and possible reorganization must be suspect. The recent call of AMA president, Wesley W. Hall, for a hard look at our posture has been rejected on two occasions by the House of Delegates. One has to ask why the House is unwilling to examine the structure of AMA and possibly its own organization. One must ask further, once the question has been raised of the possible need of Peer Review, should this question be summarily swept under the rug? Really, when an honest and sincere question exists, it introduces serious doubts as to our course. This without question is the current theme. One wonders about the reluctance of the House to submit the issue to wider debate.

There have been offered in the last several years alternatives to AMA, and these will become more attractive as AMA becomes more static and less responsive. For years the House of Delegates has consisted of older physicians. Often these are less involved and out of touch with the problems in their communities. Sometimes these are too rigid to bend to the need of the times. It has for a long time been obvious that a change in approach has been needed. More appropriate representation is necessary, with better feedback from the state and county societies. Committees which are appointed and self-perpetuating are rarely in touch with the need and desires of the average physician. It is not necessary that we emulate the United States Government with committees and departments piled one on another until no one can breathe.

One wonders about the believability of any organization that refuses to examine itself while espousing both regular examination of its customers (our patients) and re-examination of its membership as in Peer Review. Why are we above evaluation or why then do we support the long-standing hospital accreditation process and the quality assurance programs that are now in process? Why is AMA special? What is there to hide? I suggest that the membership of AMA should demand a complete and total reevaluation of AMA in regard to its structure, its representation, its goals, and direction. I suggest that if AMA is to long survive this must be done—and soon.

Harry J. McKinnon, Jr., MD*
Las Vegas, Nevada

The Phenomenal Physician's Assistant

ACROSS THE MEDICAL LANDSCAPE we see the blossoming of a new species of medical professional—the physician's assistant. Like a blight-resistant strain of wheat, this new phenomenon promises to alleviate the desperate health needs of the sick and well, the very old and very young, the ignorant and the wise among us all. The physician's assistant must be regarded as a phenomenon of the times—a transitional event in the gradual but persistent dismantling and restructuring of the system of delivery of health care.

What is this phenomenon, exactly? Much depends upon whom you talk to. It has been estimated that there are about 200 programs in being or development throughout the

*Dr. McKinnon is the Scientific Editor for Nevada of the *Rocky Mountain Medical Journal.*

country to train physician's assistants. The trainees may be ex-medical corpsmen (although the Army now has Warrant Officer grades by which corpsmen can be converted to service physician's assistants), nurses, medical technologists, or just non-professionals entering the health field for the first time. It has been variously estimated that 10 to 50 per cent of medical school graduates may now in fact be performing in capacities described in some programs for physician's assistants. This new health professional may be limited to applying and removing casts, he may be running a renal dialysis facility, or he may be carrying out and ordering diagnostic procedures, writing non-narcotic prescriptions, and performing minor surgery.

What is the consequence of the entry of this new health professional upon the delivery of health care? Physicians can now limit their attention to difficult diagnostic problems, to managing patients who do not respond well to therapy, and to developing new approaches to poorly understood areas of medicine. At least this is one hope of advocates for the physician's assistant. In addition, more people will receive high-level medical attention, and more mobile career opportunities will be created in the health professions for individuals who would otherwise never have an opportunity in this field. Insurance carriers are now providing for coverage, and most state boards of medical examiners are carefully regulating training and employment of physician's assistants, and these activities should produce a high level of practice and protect against liability by minimizing abuses.

A study recently completed in Nevada reveals that the majority of physicians, registered nurses, and hospital administrators responding to the study favor the training and employment of physician's assistants. A training program is now being developed to respond to these needs with particular attention to provision of health care in rural areas of the state and maintenance of the line of professional accountability to the employing physician. It is anticipated that trainees will satisfy many of the requirements for admission to medical school so that they may return for training towards the MD degree at a later date, should they choose.

It is impossible to predict the impact of this new professional upon training and practice of traditional health professionals but we may anticipate a gradual decrease in number and a greater selectivity in quality of students training for the MD degree. This may be accompanied by a gradual conversion of training programs for nurses into systems for producing health professionals with higher levels of responsibility, recognition, and compensation. In the meantime, this evolving phenomenon will be watched with great interest by physicians, patients, medical schools, and the public.

L. M. N. Bach, PhD*

The Foreign Medical Graduate

I AM EXTREMELY WORRIED by the fact that, as of September 1971, there were 25,000 applications to take the upcoming ECFMG examination, the passing of which, along with certain licensing requirements in the home country, is required to obtain a certificate to admit foreign medical graduates (FMGs) to internships and residencies in the United States. Data to be published by the U.S. Immigration and Naturalization Service will reveal that in the year ending June 30, 1971, 10,947 foreign physicians entered the U.S.—2,424 more than in the previous year. Of these, 5,756, 2,598 more than in the previous year, immigrated as permanent residents while the remaining 5,191 (chiefly interns and residents) entered on a temporary basis as exchange visitors (J-visa) or as temporary workers (H-visa). While these 10,947 entered from abroad, the output of the U.S. medical schools was 8,974, almost 2,000 physicians less than were admitted from abroad.

Current law (Pl 91-225) has removed the requirement that exchange visitors leave the U.S. for two years following their training unless their country signifies a shortage of the specific skills they represent. This list, the skills list, has been a long time in preparation and is about to be issued. Thus FMGs

*Dr. Bach is Director, Division of Biomedical Sciences, School of Medical Sciences, University of Nevada, Reno.

have been permitted easier access to permanent status in the U.S., as illustrated further by the fact that during 1970, 32 per cent of new licenses issued were to FMGs.

Will this increasing number of FMGs lead to an oversupply of physicians in the future? Currently the increases in enrollment and the emergence of new medical schools in the U.S. has increased first year enrollment to over 12,500. The production of physicians in the U.S. may exceed 15,000/year by 1977 or 1978. Despite our present rate of population growth there is an increasing ratio of physicians to population. We may reach a total in the U.S. of 395,000 physicians by the end of 1975. Realistic estimates of need, considering demand for service and probable changes in delivery systems, have been placed at 402,000. We may be well on the way to meetin our requirements; and with migration to our country at current levels, we may be oversupplied.

One can easily imagine the effects of the current migration on the physician manpower of the donor country. We are accused of "brain draining" countries in dire need of their medical manpower, especially in developing countries of the world where the removal of one to ten physicians represents a significant loss. While the right to migrate is recognized by the United Nations as one of the basic rights of man, any action on our part to stimulate and encourage such migration may be detrimental to the donor country. We may break down the total number of factors stimulating migration into "push" and "pull" factors. Push factors are those in the donor country encouraging emigration while pull factors are those in our own country encouraging immigration. In both we may classify the factors further as correctable or noncorrectable. Many are not correctable, as for example the stimulus of the affluence of the U.S. But some are correctable, for example, the effects of the changes in the law cited above, the training of FMGs in fields not applicable on return to their home country. It is in this area that important studies are under way in the Commission on Foreign Medical Graduates (CFMG).

Recently the CFMG has, under the terms of a memorandum of understanding signed December 7, 1971 by State Department officials, assumed the role of issuing certificates of eligibility for exchange visitor FMGs (EVFMGs) on J-visas. The issuance of such certificates (Form DSP-66), required for American Consuls abroad to issue a J-visa for admission to the U.S., will reside solely with the CFMG for EVFMGs beginning hospital service on and after June 1, 1972. This arrangement does not involve exchange visitors other than physicians in the 975 hospitals with P-II programs. It does *not* involve nor imply accreditation of programs in hospitals. It does *not* imply selection of FMGs for hospital positions. The latter will remain the activity of the individual hospitals. But it will produce certain benefits—involvements of a wider spectrum of hospitals, studies to develop better matching of hospitals and FMGs, the development of orientation programs, and the establishment of a computerized FMG data bank to provide information to guide future programming.

The CFMG program is the beginning of an activity, long sorely needed, to gain information and establish solid data on which to base our policies for FMGs in the future. It is an important step forward.

Kenneth C. Sawyer, MD

The significance of antinuclear antibodies in Reno, Nevada*

Anton P. Sohn, MD, Reno, Nevada

This study demonstrates the sensitivity and clinical significance of titered antinuclear antibodies in 99 patients in Reno, Nevada.

DURING THE LAST TEN YEARS there have been many studies correlating the Antinuclear Antibody (ANA) test with systemic disease and in particular Systemic Lupus Erythematosus (SLE).[1,2] The conclusions are influenced by the varying methods of the investigators. This study was undertaken to evaluate the sensitivity and clinical significance of the titered ANA as performed in our community. The study covers the period from September 1969, when the test became routine, to January 1, 1971.

Material and Methods

Patients: In this study 1,773 tests were performed with 99 positive results, a positive result being a titer at 1:5 or greater. Approximately 90 per cent of the tests were done in conjunction with an arthritis panel to help differentiate the various arthritides. Most of the remaining tests were specifically ordered by the attending physician. The diagnosis of outpatients is that of the attending physician. The outpatients constitute approximately 90 per cent of those with titers 1:5 and all of the unknowns (Table 1). Diagnosis of the hospitalized patients was established by history, physical examination, and laboratory findings. The laboratory findings alone were not used to establish the diagnosis. The preponderance of patients with SLE in this study reflects our search for these patients in our community.

ANA Test Procedure: The ANA technic is a modification of that of Svec.[3] Fresh human spleen was obtained from patients with ruptured spleens and smears of the lymphocytes were used for the antinuclear antigen. The patients' serum was diluted 1:5 and incubated on the smear. After incubation, fluorescein labeled goat anti-human globulin was added to the preparation. The test was considered positive if the majority of the lymphocytic nuclei fluoresced under the fluorescent microscope. With this technic, a homogeneous pattern of fluorescence is seen. Nucleolar and other patterns of fluorescence are not seen.

Lupus Erythematosus Preparation: The method used in our laboratory is that of Nagath and Winkle. Blood is allowed to clot and stand for a period of two hours. The clot is pressed through a sieve and smears are made of the resulting buffy coat. The preparation was considered positive if five per cent of the polymorphonuclear leukocytes had inclusions typical of lupus erythematosus (L.E.) cells. If only a rare lupus erythematosus cell was present the test was considered inconclusive.

Results

Controls: There were 20 patients without demonstrable organic disease who had a positive ANA (Table 1). None of these had titers above 1:20. During this study a titer of 1:5 was selected as the upper limit of normal. However, as a result of this study the limit has been re-evaluated and 1:10 is now considered the upper limit.

*Presented at the Reno Surgical Society, October 27, 1971. From the Washoe Medical Center and St. Mary's Hospital, Reno, Nevada.

TABLE 1

DISTRIBUTION OF 99 PATIENTS WITH INCREASED ANA TITERS

TITER	1:5	1:10	1:20	1:40	1:80	1:160	1:320	1:640	1:1280	Total
Controls	15	4	1							20
Osteoarthritis	5	4	1							10
Chronic Hepatitis				1	1					2
S. L. E.		2	4	5	10	2		2	1	26
Rheumatoid Arthritis	5		2	1						8
Unknown	22	3	1	2	2					30
Miscellaneous		2	1							3
TOTAL	47	15	9	10	13	2	0	2	1	99

Osteoarthritis: There were ten patients in this group. None had titers above 1:20. The higher per cent of patients with titers 1:20 than seen in the control group is probably because of the older age of the patients with osteoarthritis.

Chronic Active Hepatitis: Both of the cases are "lupoid hepatitis" and had positive lupus erythematosus preparations.

SLE: All patients with SLE had active disease and a positive ANA test. Twenty-four of the 26 patients had titers 1:20 or greater. All five patients with titers above 1:80 had lupus nephritis. Approximately one-half of those with titers of 1:80 had lupus nephritis. The clinical impression suggests a correlation of disease activity with increased titers. Individuals with active disease, in particular kidney disease, tended to have higher titers than those in remission; they also tended to have more positive L. E. preparations (Table 2). None of the patients were on steroids at the time of the test.

Rheumatoid Arthritis: Eight patients had a positive ANA test and the highest titer was 1:40. The three patients with titers above 1:20 had the disease eight years or longer. One child with juvenile rheumatoid arthritis was tested and demonstrated a negative ANA and an inconclusive L. E. preparation.

Unknown: The 30 patients in this group included patients with incomplete data. One patient with a 1:80 titer had findings suggesting systemic lupus erythematosus, but this patient was lost to follow-up.

Miscellaneous: Three patients in this group had disease with a probable underlying immunological abnormality. These include Hashimoto's thyroiditis, Hamman-Rich Syndrome, and a drug reaction with bone marrow depression.

Discussion

This study was undertaken to evaluate the sensitivity and clinical significance of the titer ANA performed in our community. The ANA was also evaluated in relation to the L. E. preparation. Table 2 demonstrates patients with a positive ANA titer who had an L. E. preparation. It is obvious that the L. E. preparation becomes positive at an ANA titer of around 1:20. One patient with an ANA of 1:640 had two negative L. E. preparations. This is not uncommon and is due to inhibitory factors or Complement being bound to the antibody antigen reaction. This phenomenon occurs in about 20 per cent of patients with active systemic lupus erythematosus. Complement in the patient's serum is necessary for positive L. E. preparation, but it is not necessary for evaluation of the ANA titer. For this reason, the ANA is more sensitive than the L. E. preparation and, therefore, a better screening test for active systemic lupus erythematosus.

The ANA is a normal constituent of serum and is an IgG antibody. Older individuals tend to have slightly higher ANA titers. The

TABLE 2

RESULTS OF L.E. PREPS ON 31 PATIENTS WITH INCREASED ANA TITERS

		L. E. PREPARATIONS			
ANA	Number of Patients	Not Done	Positive	Negative	Inconclusive
1:5	47	40		6	1
1:10	15	10		4	1
1:20	9	4	1	3	1
1:40	10	5	3	2	
1:80	13	8	4	1	
1:160	2	1	1		
1:320	0	0			
1:640	2	0	1	1 (2*)	
1:1280	1	0	1		

*Two L. E. preparations were done on the same patient.

rheumatoid factor in rheumatoid arthritis can be either an IgG or IgM. The IgM rheumatoid factor is more commonly seen in juvenile rheumatoid arthritis and incompletely binds Complements. Therefore, children with juvenile rheumatoid arthritis frequently have negative ANA's and inconclusive or negative L. E. preparations. Adults with RA usually have low titers of ANA unless they have had the disease for a number of years; on the other hand, they have high RA titers. Patients with active systemic lupus erythematosus tend to have high ANA titers and low RA titers.

Certain generalizations can also be made about the ANA in systemic lupus erythematosus. The degree of activity or severity of the disease can be correlated with the titer. Titers 1:80 or greater are more often associated with lupus nephritis, which is usually the cause of death in systemic lupus erythematosus. Since the study was concluded, we have seen one patient with a titer of 1:320 who did not have manifest kidney disease. This patient had systemic lupus erythematosus with hemolytic anemia during pregnancy.

In systemic lupus erythematosus a drop in the ANA titer indicates a remission and is usually a true remission rather than a drug induced remission. High doses of steroids over a long period effect the ANA titer to a slight degree and effect the L. E. preparation to a greater degree. Therefore, the ANA is superior to the L. E. preparation in monitoring disease activity. None of the patients with systemic lupus erythematosus had a negative ANA. Patients with an ANA titer less than 1:10 do not have active systemic lupus erythematosus and another disease should be considered.

The ANA can sometimes be used to help diagnose an immune disease. The two patients with chronic active hepatitis had high ANA titers. This disease causes high levels of gamma globulin and is due to an immune antibody different from that seen in systemic lupus erythematosus. Smooth muscle antibody is considered more specific for this disease. Hamman-Rich Syndrome, Hashimoto's thyroiditis, and other immune diseases sometimes demonstrate an increased ANA titer. •

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Advanced neoplasms of head and neck

Treatment with Combined Radiation and Chemotherapy

Kirk V. Cammack, MD, and Robert M. Taylor, MD,
Las Vegas, Nevada*

This paper is an evaluation of treatment of advanced neoplasms of the head and neck with the combination of irradiation and hydroxyurea, with or without surgery.

PHILLIPS AND TOLMACH[1] have shown hydroxyurea enhances the cytotoxic effects or irradiation. Their studies indicate that hydroxyurea inhibits the repair process in those cells which have receive potentially lethal irradiation. Hydroxyurea has also been shown to effect the radio-resistant cells.[2,3] Richards[4] has reported extensive necrosis irradiation effect in lymph nodes beyond that produced by irradiation alone when hydroxyurea is used. When hydroxyurea is administered to a patient who has been previously irradiated, an irradiation-like reaction will frequently be reproduced in the skin.

The use of hydroxyurea combined with irradiation can increase the palliation in advanced cases of epidermoid carcinoma and in many cases may convert a tumor initally considered inoperable to a lesion which is technically possible to remove, as has been reported by Lerner and Beckloff.[5,6]

The purpose of this paper is to emphasize the optimum palliation possible in patients who are not operable either because of the extent of their neoplasm or because of concomitant disease. In these patients significant palliation may be achieved with the patient dying of other causes, the cancer still being present. The tumors treated by this combined method are listed in Table 1.

*The authors are from the Department of Radio-Therapy, Southern Nevada Memorial Hospital, Las Vegas, Nevada.

TABLE 1

TUMORS TREATED WITH COMBINED IRRADIATION AND HYDROXYUREA

1. Mixed Tumor Nasopharynx—Recurrent
2. Lymphoma of Thyroid
3. Metastatic Hypernephroma to Neck
4. Undifferentiated Carcinoma of Parotid
5. Adenocarcinoma of Parotid
6. Carcinoma of Larynx
7. Undifferentiated Carcinoma of Nasopharynx
8. Small Cell Carcinoma of Thyroid
9. Epidermoid Carcinoma of Floor of Mouth

Methods

Hydroxyurea, 80 milligrams per kilogram, is administered every third day starting one week before the irradiation. The radiation source is a 2 MEV Van de Graaf unit, and full therapeutic doses of irradiation are used. Hydroxyurea is continued indefinitely. White counts below 2,000 to 3,000 cells necessitate cessation of the drug, but usually within a week the white blood count returns to normal and it may be resumed. One of the difficulties with the pharmocologic preparation of hydroxyurea, Hydrea, is the number of pills that are necessary to be swallowed in order to reach therapeutic doses. Hydrea is packaged in 500 milligrams capsules and ten to fifteen capsules are usually needed. Patients with advanced head and neck cancer already have difficulty swallowing with the marked mucositis that develops with irradiation. The difficulty with the swallowing of the medication is a definite problem.

CASE REPORTS

Case 1. Advanced carcinoma of the tonsil with senility.

A 78-year-old man was referred with clinical bilateral cervical metastasis. He had advanced arteriosclerosis and senility. The primary was found in the right tonsil and biopsied. The patient received hydroxyurea prior to his irradiation with a total calculated dose in the midline at the level of the tonsils of 5,550R, the total calculated dose to the left side of the neck of 5,584R, total calculated dose to the right side of the neck 5,775R. This patient's cervical lymphadenopathy disappeared and at the present time there is no evidence of primary in the right tonsil 30 months following the initial diagnosis.

Case 2. Advanced epidermoid carcinoma of floor of mouth with advanced heart disease.

A 68-year-old man with advanced aortic valvular disease presented with a large carcinoma of the floor of the mouth which had been neglected for over one year. One centimeter nodes were palpable in both cervical chains. Because of the patient's advanced aortic stenosis it was decided that extensive surgery would not be possible. The patient received hydroxyurea and then low intensity interstitial radium needle implantation to the involved areas of the floor of the mouth. He received a total of 6,000 gamma R calculated dose. The patient had a marked reduction of the size of the tumor of the floor of the mouth but continued to have a foul smelling fungating mass in this area. He then had surgery with a marginal resection of the floor of the mouth and excision of a portion of the tongue. The patient had residual tumor in both sides of his neck but was able to eat. He lived for one year and died suddenly of his aortic stenosis.

Case 3. Advanced epidermoid carcinoma of oropharynx with coronary artery disease.

A 54-year-old alcoholic male, who smoked three packs of cigarettes a day, had arteriosclerotic coronary disease and was on quinidine and digitalis. In June 1967, the diagnosis of a right cervical node metastasis from squamous cell carcinoma of oropharynx was made. The tumor extended from the posterior alveolar ridge down to the pyriform sinus. Initially the patient received intra-arterial methotrexate therapy 50 milligrams a day for six days to shrink the bulky tumor, and its size decreased significantly. Following this, a combination therapy with hydroxyurea and irradiation was carried out. A large field incorporating the area involved was administered including the entire lymphatic distribution of the neck to a total dose of 6,000R. The region of the pharynx received a dose of 4,350R. This combination of drugs and irradiation caused a significant palliation. The patient remained in remission with no other therapy other than the hydroxyurea until he died 16 months later with an acute myocardial infarction. This case represents the optimum palliation from advanced epidermoid carcinoma of the oral pharynx with the patient dying of another disease.

Case 4. Epidermoid carcinoma of the tonsil in a patient with another malignancy.

A 69-year-old man, who had previously had a diagnosis of metastatic adenocarcinoma of the prostate treated with prostatectomy and bilateral orchiectomy, developed a large carcinoma of the tonsil, measuring 2.0 x 2.0 x 2.0 cm. No peripheral nodes were palpable. After biopsy, the patient was given external radiation by the 2 MEV Van de Graaf unit to the right tonsillar area for a total of 1,125R. During this period of treatment he received hydroxyurea. He then had Radon seed interstitial implantation into the tonsillar cancer for a total dose of 6,000 gamma R. He did well after this treatment with complete disappearance of his primary neoplasm. Re-biopsy of the tonsillar area was done ten months after the diagnosis with no recurrent cancer demonstrated. He stayed on hydroxyurea throughout this time. The patient's adenocarcinoma of the prostate continued to cause pain and a chordotomy was done. The patient later developed a paraplegia. He expired 20 months after the primary diagnosis of prostatic adenocarcinoma with no clinical evidence of recurrence of the tonsillar carcinoma.

Discussion

When a surgeon attempts to help a patient with advanced epidermoid carcinoma of the head and neck, he needs all the help he can get. Even early epidermoid carcinoma of the head and neck is fraught with complication because of health habits of the patient. Excessive smoking and emphysema, alcoholism and delerium tremens, poor nutrition, and poor healing make an already difficult technical problem even more complicated. The combination of hydroxyurea and irradiation can convert a patient who is considered inoperable to one upon whom it is technically possible to remove the disease. None of the neoplasms other than epidermoid carcinomas responded to this type of therapy except perhaps a small cell carcinoma of the thyroid who is still living without clinical disease at four years. The effect of the combination of irradiation and hydroxyurea on carcinoma of the larynx did not appear to be much different than that with irradiation alone. This is

true in another study of squamous cell carcinoma of the lung. Advanced epidermoid carcinomas of the head and neck however have responded to the combination of therapy of irradiation, hydroxyurea and surgery.

Summary

This paper is presented to emphasize that significant palliation of an inoperable patient, whether it is from epidermoid carcinoma or concomitant disease, can be achieved with combination therapy. A truly objective evaluation of the treatment modality is impossible when more than one method of treatment is used. It is our clinical impression however that the combination of the drug hydroxyurea and irradiation therapy produces a significant clinical regression of tumor that is not seen when either modality is used alone. •

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Medical education and the University of Nevada, Reno

Dan L. Oppleman, EdD,* Reno, Nevada

MEDICAL EDUCATION at the School of Medical Sciences, University of Nevada, Reno, is in the first stages of refining a significantly different two-year program for future physicians. Because what occurs in the teaching classroom is always the crucial test of instructional effectiveness, there are four major educational emphases in the medical educational program:

(1) An instructional materials communications system.

(2) A performance-oriented curriculum, emphasizing clinical-biomedical problem situations, rather than pursuing subject matter for its own sake.

(3) Instructional tasks which point up learning as the students' responsibility.

(4) A faculty committed to teaching methods based on in-service training in the most advanced concepts of what we know about the best ways students learn.

All these come to a clear focus in what is proving to be exciting experiences for both staff and students.

The everpresent problem for all educators is closing the gap between theory and practice. At the University of Nevada an effort has been made to build into the program a common pool of the tested and researched data from the best educational psychologists. Consequently, assumptions about the basic teaching policy were first established and agreed upon, not only by those present in the early developmental stages but by all staff subsequently recruited for planning and teaching. The new two-year School of Medical Sciences opened the doors for its first 32 medical students in September 1971.

Rarely, except in the case of schools starting completely fresh, does the opportunity come to develop and carry out a significantly new type of educational program. The developmental steps that have helped insure the on-going success of the program include recruiting of staff and the primary task of curriculum development. After several years of painfully arduous debates, a performance curriculum with the burden of learning on the student, assisted by staff guidance and adequate teaching materials for self-learning and individualized study was developed. Rather than seeking a compromise between a systems and an organ approach, a happy marriage of the two concepts was developed. This newer concept depended on clinical problems as the central focus for educational exploration. It has become highly motivating and relevant because of the balance that was established with the basic sciences, clinical sciences, and behavioral sciences.

From the start, it was realized that an integrated and interdisciplinary program would demand adequate inputs from the behavioral sciences, including psychology, sociology, and psychiatry, the basic sciences, and the clinical sciences. The usual "package" or course method of teaching was abandoned. Instead, these three forms of science became strands woven into the on-going daily problem-solving encountered in the biomedical-clinical classes. For example, the work in the behavioral sciences became sessions devoted mainly to dealing with the personal and interpersonal relations and attitudes as they derived directly from the classroom and clinical situations of the course of study.

The two-year curriculum, preparing students for either a terminal three-year school

*Dan L. Oppleman, EdD, is Director, Division of Educational Support and Communications, School of Medical Sciences, University of Nevada, Reno.

or regular four-year school, is innovative because of certain unique features. First, our approach to understanding curriculum is based upon the idea that it is a complex of every ingredient of what takes place in the classroom. This means that the teacher sees readily that many other factors such as proper use of teaching aids, adequate lighting and ventilation, good interpersonal relations, a clear statement of students' objectives, and testing of how successfully these objectives are met, are typical of the things that must be considered. No one of these items alone is particularly innovative, but when they are all dealt with daily, the program attains educational significance. Second, curriculum planning gradually became a joint task between clinicians, bio-medical staff, and behavioral sciences staff. This cooperative action was almost inevitable as the effort increased to insure a smooth flow of the learning experiences over the two years and the determination to make them truly interdisciplinary. Third, regular in-service workshop sessions for teaching faculty, in which they discuss current problems of teaching in the classroom, review anticipated problems with a variety of alternative solutions, and role-play actual classroom situations in a "mini-teach" session, using video tape, have become one of the most effective means of stimulating faculty to actively seek out effective methods. The faculty also has an opportunity in these experiences to keep abreast of new technics and to share their common interdisciplinary teaching problems. This has proven to enhance the feeling of comradeship, and the sharing of video tapes of both the mini-teaches in workshops and video tapes of actual classroom teaching are serving as rich resources for analysis or critiquing amongst them. Fourth, since problem-solving habits are encouraged in the students as a way of learning, the self-learning aspect of their study has grown in importance. Learning to do by doing is regarded as a dynamic guide to learning. More will be said about this in the following paragraphs as it comes from additional points which need to be stressed.

Hand in hand with its new approach to medical education, staff is readily learning that the traditional picture of the instructor as a fountain of knowledge, no matter how artfully he sprays the data, is no longer tenable. Instead, meshed with the newer ideas from educational psychology, his role has become more the guide for the student learning, fitting the learning to both students' needs and those explicit data, skills, and attitudes stated as objectives in the curriculum. This new approach tends to let the instructor, in terms of his own personality and abilities, adapt his teaching skills to what we think we know about the most effective ways students learn. From this, two very cheering and rewarding results have emerged.

First, with the instruction student-centered, faculty see more clearly the reasons for stating objectives, which helps them and the students in class. They similarly proceed, often with help from the students, to keep the learning activities that occur, whether they be lectures, discussions, presentations, demonstrations, labs, or what, from veering from the stated objectives. Finally, and of crucial concern, no learning is seen completed without measuring accomplishment of it in a variety of ways against these same objectives. There have been instances in this first year when all was not accomplished in terms of the ideal; but when the format was adhered to, it produced voiced satisfaction from staff and students.

Second, to meet the anticipated student needs that would arise from using such methods, there has been a marked increase (which should continue) in the use of the self-learning center, and the production of materials for use in it. In this center, automated sound-slide modules, films, special study references, and similar software have been made available to students on a day and night basis throughout the week. This is exclusive of library services and hopefully will be expanded to 24 hours a day within another year.

The self-learning center was conceived and has been developed as an effective means for medical students, particularly, to have direct access to learning materials in small packages of great impact. The forms of these materials have been noted, but their use in the center is fourfold: (1) opportunity for a student to study at his own pace and at a time of his choice; (2) opportunity for the

student to orient himself to upcoming class sessions; (3) opportunity for the student to pursue remedial work; (4) opportunity to review daily work. Thus, in making use of the center, it becomes a place where students can study selectively or in which faculty may actually make assignments. It is probably evident that much material usually presented in class could be studied by the student in this center, thus saving much class time for the discussion of additional relevant problems, issues, and interests of both students and faculty.

Previously, mention was made of an instructional communications system, the heart of which is excellent color television, with both portable and studio cameras. This is enhanced by microwave interconnect with the largest local hospital, and planning includes other hospitals in a few years. Uniquely, the system not only provides direct transmission of live and taped presentations to carrels in the self-learning center but also connects to classrooms, labs, conference rooms, and seminar locations. Also, the system is designed to transmit films, slides, and other resource materials to viewing monitors. Benefits have already been gained from such a system in saving instructor time, cutting down student travel, and making laboratory experiments more meaningful. The system also opens up greater access to learning materials locally produced as well as those obtained from other schools. Another important feature of this system lies in opportunities for private practicing physicians to orient and re-orient themselves to the teaching role. This has enhanced their participation in our teaching program. Steps have been taken to evaluate this system and its use, and, when added to current research, should go far in producing data for the improvement of instruction.

Summary

The School of Medical Sciences, University of Nevada, Reno admitted the first students in September 1971. As discussed above, development and practice of the educational program is based upon the following principles:

(1) In medical education there is a gap between theory and practice.

(2) Primary therapy for this breach lies in viewing teaching and learning as two sides of a coin.

(3) The arts and sciences which the instructor applies to teaching should be those which fit best with the ways students learn.

(4) Faculty (bio-medical, behavioral sciences, and clinical) should be totally committed to a basic policy built on the ideas stated in the preceding three items.

(5) Continuous in-service training is as important to successful instruction as oil is to a motor.

(6) One arm of the school, preferably with high level administrative status, should be an educational and communications support section which can assure responsibility for carrying out the ideas contained in this article.

(7) Organization of a self-learning center, a place for independent and individualized study, is an integral part of effective medical education.

(8) An instructional communications system is vitally needed to insure the success of the many aspects of teaching and learning which have been discussed. •

PVC's or critical conduction?

Philip R. Akre, MD,* Las Vegas, Nevada

THE ELECTROCARDIOGRAM is a useful diagnostic tool for the analysis of cardiac arrhythmias. Careful analysis is necessary to avoid incorrect interpretation, which might result in inappropriate therapy. Differentiation between premature ventricular contraction and critical conduction requires keen examination of the tracing.

The example illustrated (Fig. 1) is a continuous rhythm strip recorded with bipolar chest leads. There is a basic sinus rhythm present (with slight sinus arrhythmia) at a rate just above 60 per minute. Frequent atrial premature contractions are present. There are no premature ventricular contractions on this rhythm strip. The premature atrial P waves are occurring at various intervals from the preceding sinus beat. Usually the premature P wave falls somewhere on the T wave of the preceding complex. This can be identified by the different configuration of the T wave (lumpy) with a P wave on top of it, as compared to the T wave that does not have a P on top of it (such as the first two complexes in the top strip). When the R-R interval between a sinus complex and a premature atrial contraction exceeds .50 seconds, the configuration of the QRS produced by the atrial premature contraction is relatively normal. When the R-R interval is less than .47 seconds, the QRS configuration is that of right bundle branch block. This may be referred to as aberrant conduction due to critical conduction of the right bundle branch. Between .47 and .50 seconds is required (at this time in this individual) for the right bundle to repolarize. Therefore QRS's, with an R-R interval of less than .47 seconds, are occurring during the refractory period of the right bundle branch and a right bundle branch block configuration results. On two occasions in this rhythm strip, the premature P wave occurs so close to the preceding complex that no conduction to the ventricles results. This occurs following the fifth QRS complex in the top strip and following the next to last QRS configuration in the fifth strip. These two P waves occurred so early that the A-V node may have been refractory, or possibly the impulse passed through the A-V node but the left bundle was still in the refractory state as well as the right bundle.

Aberrant ventricular conduction due to critical conduction occurs rather commonly. One may confuse this with premature ventricular contractions unless a high index of suspicion is maintained. Critical conduction usually results in a right bundle branch block pattern although occasionally a left bundle branch block pattern is produced. On close inspection, a premature P wave can almost always be found in the T wave of the preceding complex. It may be necessary to look for the premature P wave in more than one lead axis, since the premature P wave may be isoelectric in any one lead axis. Premature ventricular contractions are almost always followed by a complete compensatory pause. An atrial premature contraction with critical conduction producing aberrant ventricular conduction (or with normal intra-

*Dr. Akre is Director, Cardiovascular Department, Sunrise Hospital, Las Vegas, Nevada.

ventricular conduction) usually is not followed by a full compensatory pause. Of course, this is not helpful in the presence of atrial fibrillation with a rapid ventricular response (where critical conduction of the right bundle branch frequently is seen).

If one approaches the analysis of every aberrant QRS complex with the thought that this may be a supraventricular beat with aberrant conduction due to critical conduction, critical conduction will be found to be present surprisingly often. •

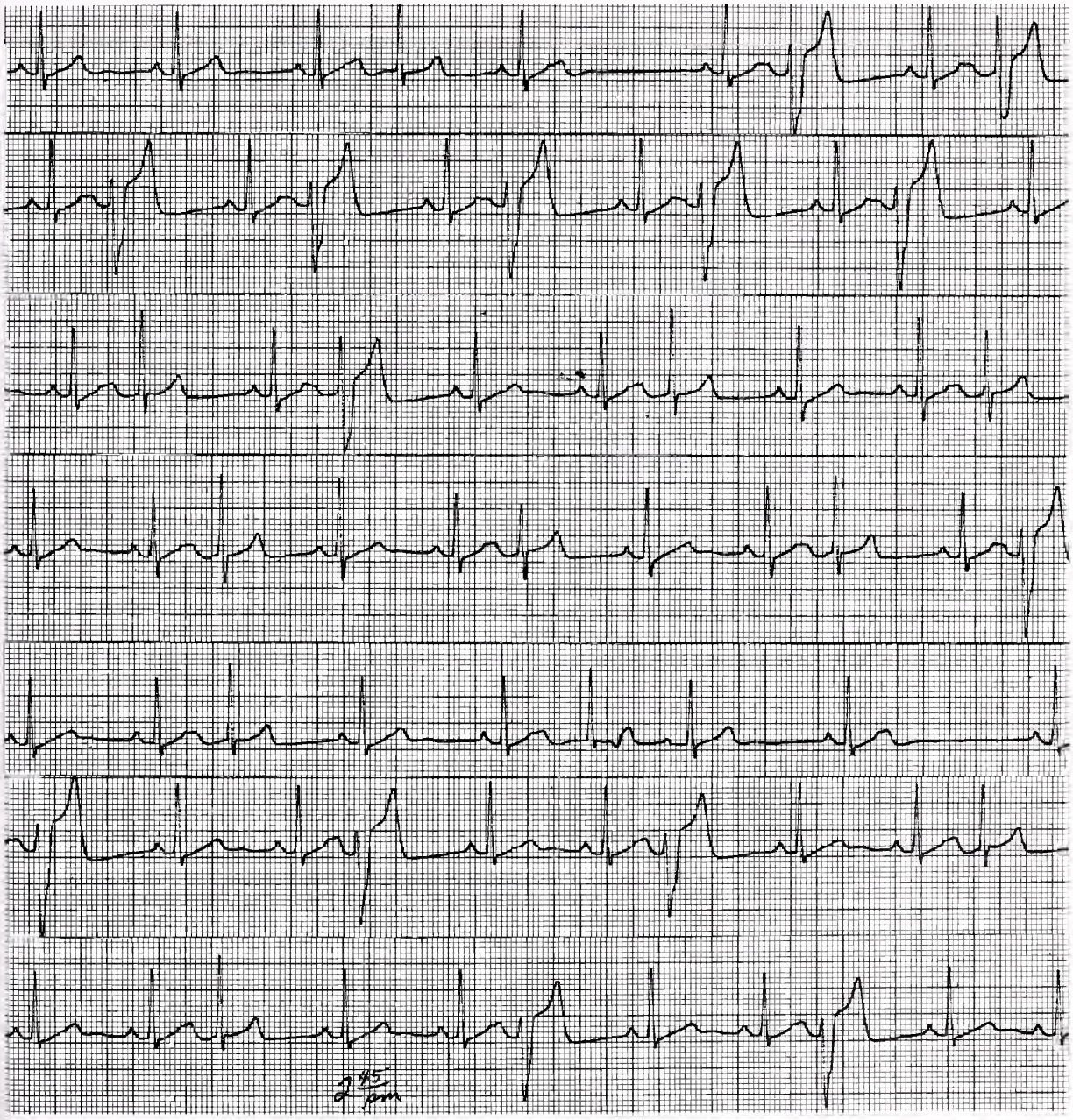

Fig. 1. Continuous rhythm strip demonstrating critical conduction.

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1. Who may submit articles. The Rocky Mountain Medical Journal ordinarily accepts only articles prepared by members of the state societies we serve and by guest speakers at their official meetings.

2. Method of preparation. All material for publication must be typewritten, double spaced, with liberal margins, using only one side of the paper, pages consecutively numbered, and preferably on standard 8½ x 11 white bond paper. Carbon copies are *not* acceptable.

Title (preferably short) and author's name, city and state must appear at the top of the first page. Second and subsequent pages should be identified with consecutive page numbers and author's surname. If physician authors possess more than one degree, the MD only is used. Lesser degrees of non-MD authors or co-authors may be used.

Please include beneath the title or at the top of the first page a brief paragraph stating what the article is designed to show and, therefore, why it should be read. This introductory feature is, in editorial parlance, called the "blurb"; it is printed in bold type.

3. Where to submit material. All copy must be sent to the editor for the state in which the material originates. Editors for each state, with their mailing addresses, are listed monthly on the Table of Contents page of the Journal.

4. Acceptance or rejection. The state editor will (1) tentatively accept the article, (2) return it to the author with suggestions for revision, or (3) reject it. He will edit and forward approved copy to the publication office in Denver for final editing and scheduling.

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12. Editorials. We would like to have more submitted by our State editors and the membership at large. Readers must get tired of thunder from publication headquarters in Denver; frankly, we do too! Speak out, and we'll sign your name, initials, or respect your request for anonymity, as you choose. If you don't like something we do or say, please let us in on it; we could even stand to hear about it if something happens to please you. A "Letter to the Editor" may help you get something off your mind. We're asking for it and we have a place to put it—in the Journal, that is!

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Feeding behavior in the medical sciences

Kamal S. Yackzan, PhD,* Reno, Nevada

Appetite and taste are reflections of the metabolic or genetic constitution. Perhaps they can be diagnostic tools.

IN THE MIDDLE THIRTIES, Curt P. Richter published an account of his experiments on adrenalectomized rats. The rats distinguished between three per cent salt solution and water before and after adrenalectomy. After the removal of the adrenal glands, the salt solution intake increased. Richter suggested that "appetite may be used as a measure of the deficiencies produced by endocrine disturbances, by pathological changes in other parts of the body". The inseparable biologic phenomena of appetite, taste, and smell may be observed in neonatal human infants during feeding. It is also known that taste undergoes transient changes in man in conditions of infection or in certain metabolic changes. Fornasari (1951) reported changes in taste thresholds in women during pregnancy. There are a number of reports in the literature of a change in taste, or in total loss of taste (ageusia) or loss of smell (anosmia) in man as a result of medication. Hallman (1953) reported the loss of taste as a toxic effect of methimazole (tapazole) therapy in three cases. In one patient, this drug resulted in both anosmia and ageusia. Schneeberg likewise reported the loss of taste in man due to methylthiouracil therapy. Also the relation of genetic composition of man and his taste for phenylthiourea is well known. Blakeslee and Fox (1932), Harris, Kalmus and Trotter, and Harris and Kalmus (1949, 1951) reported their findings on taste sensitivity to several urea derivatives as well as PTC in various groups of normal subjects as well as in goiter and diabetic patients, and they suggested that differences in taste sensitivity may reflect metabolic differences in individuals with regard to closely related substances. Tasters and nontasters with respect to phenylthiourea show a differential taste response to a large number of other substances containing the group $=NC(S)-$. Substances containing this group are generally goitrogenic. Table 1 shows their finding on diabetic and thyroid disorder patients. These data suggest, according to Harris et al., that nontasters may be somewhat more susceptible to goiter development than tasters. Klein (1952) reported on the significance of PTC taste differences in medicolegal cases, especially paternity suits. Riddle and Wybar (1944) found that individuals who could not taste PTC were not tasters of thiouracil and PTC tasters found thiouracil bitter. Earlier, Fox (1932) tested a large number of substances related to PTC and found the subjects to be reporting either bitter or tasteless reactions.

TABLE 1 (1949)

Group	Total	Number and Percent of Nontasters
Normal subjects	541	169 (31.2%)
Diabetic patients	103	31 (30.1%)
Toxic diffuse goiter	218	67 (30.7%)
Nodular goiter	134	55 (41.0%)
Total	996	322 (33.3%)

From the above, it is possible to foresee further impetus in taste research for diagnostic purposes. Instead, a great deal of attention is directed by industry to food and flavor with the objective of making their financial gain more palatable to the consumer. Workers in the basic and medical

*From the Department of Anatomy, School of Medical Sciences, University of Nevada, Reno.

sciences, on the other hand, continue to be interested in the interaction of taste substances with taste receptors and how this affects appetite and feeding behavior. From this it is hoped that the configuration of a taste receptor and the identification of functional groups of a large number of taste substances man and other organisms ingest may enable both the physician and the scientist to learn about the organisms' internal environment. One happy consequence would be to emphasize the use of some of the discoveries for diagnosing disease and for obtaining genetic information through simply devised taste tests.

The following preliminary but supporting study is consistent with this objective, namely to gather basic information on feeding behavior from a variety of vertebrates and invertebrates and to relate taste-related changes to those of the internal environment of the organism. For instance, the biological effects, in this regard of *Gymnema sylvestre* on man and animal have been reported earlier by Yackzan (1965, 1966).

In the search for chemoreceptors and some basic knowledge of feeding behavior in marine organisms the following experiments were carried out. Interest in the marine organism *Busycon caricum* was aroused by the work of Dr. L. H. Wood (1966) on *Urosalpinx cinerea* and his later work at Virginia Institute of Marine Science relative to the feeding behavior of this organism and the ecology of oysters, especially in the Chesapeake Bay where the oyster industry has suffered environmental setbacks. In order to know how to combat the destructive effect of *U. cinerea* on the oyster, it was necessary to study its chemoreception properties and hence its feeding habits. Such knowledge would give rise to defensive measures against *U. cinerea* through influencing its chemosensory receptors and hence altering its ecology. Preliminary work was initiated on the *B. caricum* for two important reasons: (1) *B. caricum* is larger than *U. cinerea* and hence electrophysiologic technic for detection of chemoreceptors lends itself much easier for this organism than for the significantly smaller *U. cinerea*; (2) the two organisms have similar neuroanatomical structures. The anatomy of the genus *Busycon* may be reviewed in the text by Sherman and Sherman (1970).

The targets chosen in *Busycon* for stimulation by test substances to detect chemoreceptors were two structures, (1) the siphon and (2) the osphradium. The siphon is the only protruding organ above the bottom level of the substrate, and it appears that the organism uses it to sample the environment. The osphradium (often a patch of elevated sensory cells at the base of each gill) likewise has long been considered from behavioral studies to be a sampler of the chemical and physical nature of the fluids. Its location at the base of the siphon and in the path of the incoming fluids, lends support to such speculation, according to Meglitsch (1967) (For further reference, consult Yonge 1934, 1947).

TABLE 2

AMINO ACIDS IN EFFLUENT OF CRASSOSTREA VIRGINICA

(mg.AA/61. solution)

SER	13.65 mg.
GLY	6.75 mg.
PRO	17.25 mg.
ALA	8.01 mg.
ORN	7.92 mg.
LYS	2.92 mg.
THR	4.76 mg.
GLU	2.92 mg.

Materials and Methods

The *Busycon* was extracted from its shell in order to obtain access to the target organs and nerves for stimulation. The injection (10 cc. succinyl chloride and neostigmine bormide; 5 cc. of each) usually relaxed this organism and facilitated the dissection of the nerve from the pedal and parietal ganglia. The nerve leading to the osphradium or from it to the left parietal ganglion or the one from the left cerebral ganglion to the incurrent siphon was exposed by teasing the muscle and connective tissue away from it. Fig. 1 shows a diagrammatic representation of the neuronal connections. The isolated nerve was placed on two active electrodes (push-pull arrangement) and a ground electrode was located in the tissues close to the isolated nerve. The electrodes used were constructed of number 24 gauge platinum 70 per cent, iridium 30 per cent wire. These were connected to either Hushed Transistor preamplifier, Millivac Type VS-68B, or a Grass preamplifier Type P6. From the preamplifier the signal was led to either a Tektronix storage oscilloscope Type 549 with Type W plug-in unit or to a Tektronix 502A Dual Beam type scope. Action potentials were photographed from the face of the scope grid. Standard test solutions used consisted of 0.5M

sucrose, 0.4NHCl, 0.025M quinine sulfate and 0.5NaCl. Dilutions were used of these as desired; also used was a mixture of amino acids found in the effluent of the oyster, *Crassostrea virginica* (see Table 2). Stimulation consisted in random selection of the quality and quantity of test solutions which were flowed over the osphradium followed by sea water rinse after each stimulus.

Results and Discussion

In the absence of both the evidence in the literature of recorded action potentials from *Busycon* which would give rise to these, it was necessary to utilize solutions used in human studies, namely salt, sweet, bitter, and sour solutions as shown in the experimental section. These did not lead to any definitive results as to the dose-response in the *Busycon*. The amino acids solutions were more effective in provoking a response in this organism as shown in Figs. 2-6. It is possibly reasonable to suggest that a marine snail such as *Busycon* is adapted to saline taste and hence does not show a significant response to feeding stimuli of such quality or kind of taste stimuli. The presence of amino acids (AA) in the surrounding of this organism is apparently detected not only because the AA contrast with the saline solution structurally, but quite possibly because of a more pertinent factor, the nutritive aspect of AA, or that these signal the presence of a predator or prey in the neighborhood. Fig. 1 shows two nerves from the left parietal ganglion leading to a distinct central ganglion which traverses the midline of the osphradium. A third nerve from the left cerebral ganglion connects by a thinner nerve to one of the osphradial nerves and innervates the incurrent siphon. The siphon was suspected to contain both mechanical and chemical stimuli.

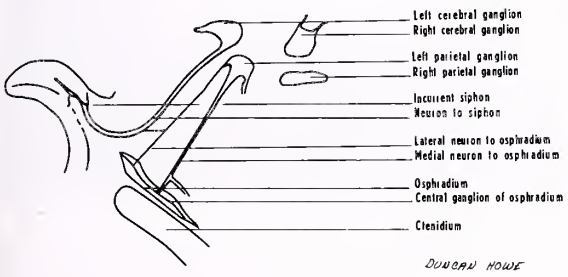

Fig. 1. Diagrammatic representation of the neuronal connections in Busycon caricum showing the nerves from which action potentials were recorded.

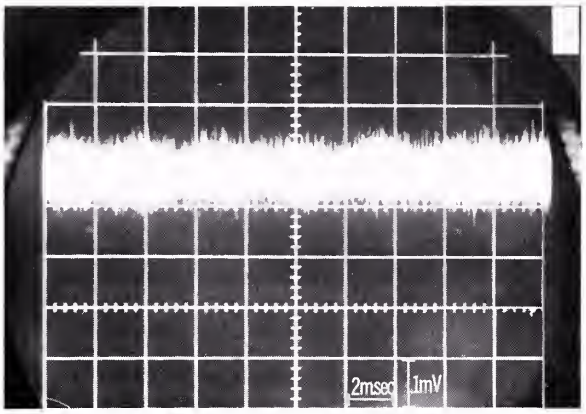

Fig. 2. Baseline on the grid (face) of the cathode ray oscilloscope with the nerve (to the siphon) placed on the active (recording) electrodes before stimulation of the siphon. The vertical side of the square of the grid is 0.1 mv; the horizontal is 2msec. (see Fig. 3).

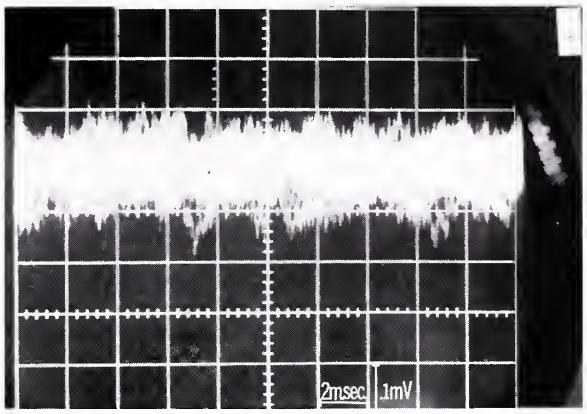

Fig. 3. Action potentials from the nerve to the siphon after stimulation of the siphon with amino acids solutions. The vertical side of the square of the grid is 0.1 mv; the horizontal is 2msec. (see Fig. 2).

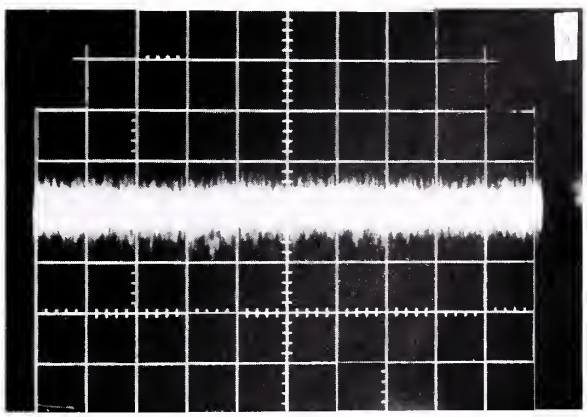

Fig. 4. Baseline on the cathode ray oscilloscope with the most medial osphradial nerve placed on the active (recording) electrodes before stimulation of the osphradium with amino acids solution. The vertical side of the square of the grid is 0.1 mv; the horizontal is 2msec. (see Figs. 2 and 3).

FOR CORRECTION
SEE p. 76, Vol 69, #5, 1972

Figs. 5 and 6 show two of several recordings of action potentials from the most medial osphradial nerve. Responses to 0.5M salt and to 0.5M sucrose solutions were less frequent than those caused by 0.025M quinine sulfate and 0.4M HCl. The fact that the osphradium was continuously washed by sea water in addition to other unknown factors may account for this differential and somewhat weak response by these stimuli which give stronger responses in man and rodents. The response to the amino acids found in the oyster effluent was particularly strong. (Only action potentials from these are reported in this study.) Similar responses were elicited from the more lateral osphradial nerve bundle. Application of the amino acids solution to the area of the incurrent siphon anteriad to the osphradium resulted in similar electrical activity. This suggests that this area may contain chemoreceptors also. A nerve leading to that area was dissected and identified, and further studies need to be made for its specific function. This area of the siphon is relatively muscular. The nerve leading to it apparently subserves both motor and sensory areas within it. The connecting nerve from it to the more lateral osphradial nerve may have motor neurons as well. The action potentials recorded from the lateral osphradial nerve may be afferent or efferent impulses. Fig. 2 shows base line (with some spontaneous action potentials) before stimulation of the siphon. Fig. 3 shows action potentials in response to stimulation of the siphon by amino acid (AA) solutions as recorded from the whole nerve to the siphon. Fig. 4 shows the base line before stimulation and Figs. 5 and 6 action potentials after stimulation of the osphradium with AA as recorded from the medial nerve to the latter.

The amplitude of the recorded action potentials is in the range of one-hundredth to one-tenth of a millivolt and often of lesser value. Occasional higher potentials have been recorded, and it was not definite that these were not contributed by extraneous sources. Also it was possible that the recording from a whole nerve bundle may account for different heights of action potentials depending on the fibers position relative to the electrode and the type of conducting fibers, whether it is efferent or afferent in the nerve bundle.

The lack of definitive results and exact localization of receptors in this experimental study of the *Busycon* detracts from its strength, but does not refute the fact that there is preliminary electrophysiological evidence of action potentials recorded from suspected target areas. These target areas were deduced from behavioral studies. To date no similar recording has been published. It is hoped that these results may spur further investigations in feeding behavior so that more information may be obtained for better health and ecological conditions of man and other organisms.

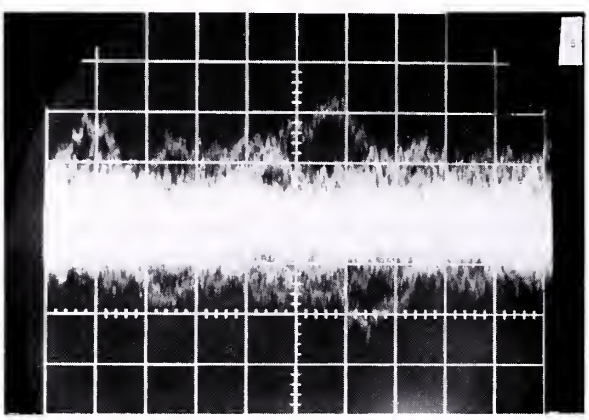

Fig. 5. Action potentials from the most medial nerve to the osphradium after stimulation of the osphradium with amino acids solutions. The vertical side of the square of the grid is 0.1 mv; the horizontal is 2msec. (see Figs. 2 and 3).

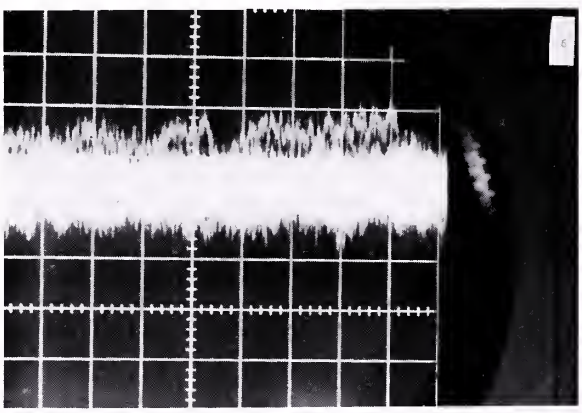

Fig. 6. Action potentials from the most medial nerve to the osphradium after stimulation of the osphradium with amino acids solutions several minutes later. The vertical side of the square of the grid is 0.1 mv; the horizontal is 2msec. (see Figs. 2 and 3).

Summary

The closely associated phenomena of appetite and taste in feeding behavior are a reflection of the human metabolic or genetic constitution. A potential for improvement in medical diagnosis exists if more emphasis could be placed on utilization of available data in feeding behavior. The report of a preliminary study on a marine snail, *Busycon caricum,* is an illustration of some of the basic research in this area from which further information might significantly affect the ecology and health of man and other organisms. •

ACKNOWLEDGMENT

The writer wishes to acknowledge the capable assistance of Duncan Howe, Dr. L. H. Wood, and the staff of the Virginia Institute of Marine Science where this work was done on a summer project supported by the National Science Foundation.

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Cooperation for mental health

Paul L. Whitehead, MD, Salt Lake City, Utah*

This paper examines mental health needs through historical and population surveys and defines an approach to meeting these needs through the cooperative efforts of concerned care-givers.

IT IS ESTIMATED that at least ten per cent of our population, adults and children, has moderate to severe emotional problems which interfere with comfortable and productive living. Myths and records of early peoples indicate that disordered behavior and emotions have been a part of man since his beginning. Generally speaking, primitive man attributed all illnesses to forces acting outside of his body, including evil spirits and demons. Mental disorders are described in the early writings of Egypt, China, India, Greece, and Rome during the thousand years before Christ. Humanitarian attitudes toward the afflicted were first seen with the recommendations of the Greek's for kindness and the use of recreational activities. Hippocrates, in about 400 B.C., developed a classification of mental problems and related disorders to the presence of abnormal amounts of bodily chemicals. Other Greek philosophers emphasized the role of emotions, especially hate and love, in determining behavior.

During the Dark Ages, deviant behavior and strange feelings were again interpreted as a reflection of evil and supernatural forces, and therefore many persons with these disorders were subjected to Church purification through the Inquisition. The publication in 1487 of the *Malleus Maleficarum* or "Witches Hammer" inseparably linked mental disease and witchcraft for many centuries. Other mental patients were confined to attics and cellars, imprisoned by their relatives, or simply abandoned.

In the latter part of the middle ages a number of philosophers and physicians refuted the concept of witchcraft and began to relate such symptoms as hallucinations to natural factors. Perhaps the best example of this was a book written by Johann Weyer, "the first psychiatrist", in 1563. His book, entitled *De Praestigiis Daemonum,* strongly rejected belief in witchcraft and related mental disorders to natural forces. This book emphasized the importance of a therapeutic relationship and advocated scientific principles of examination and observation.

The eighteenth and nineteenth centuries saw a marked revival of interest in the humanitarian care of the mentally ill. This was symbolized in the work of Philippe Pinel in 1792, who "removed the shackles" and provided hospitals for the care of mental patients. From the eighteenth century until the present time, the care and treatment of the mentally ill has been primarily the responsibility of psychiatry; and until recent years most of the treatment was rendered in hospital environments. Psychiatry became a formal speciality of medicine in 1844 with the establishment of a national society of psychiatrists, now the American Psychiatric Association.[1]

The development of psychiatry closely parallels reformationist attitudes and gradual awareness of the rights and dignity of man. The history of child psychiatry goes beyond this and reflects increasing social conscience and responsibility. Almost until the last century, children were considered as "just small

*The author is Director of the Children's Psychiatric Center of Primary Children's Hospital, Health Services Corporation of the Church of Jesus Christ of Latter-Day Saints, Salt Lake City, Utah.

adults" except in the area of rights, privileges, and needs. Through most of the middle ages children were of little concern. Probably the only consistent care for children during this time was by the Church. In 1267 England declared that the state would penalize a guardian of a child for "waste". England's Poor Law of 1601 is the first significant evidence of state responsibility for the welfare of children. Prior to this, children could be abused, imprisoned, and exploited. This law led to the development of the poor houses and alms houses as described in Dickens's *Oliver Twist.* Amendments to the Poor Law in the latter part of the nineteenth century made the neglect of children punishable, and authority was given to the state for removal of neglected children. These laws and the awareness of children's needs that they reflect set the stage for the development of child psychiatry.

At the turn of the century and in the first decade of this century there were many significant developments in behalf of children. The juvenile court system, which began in Colorado and Illinois in 1899, reflected society's feeling that there was some difference between the child and the adult offender; and there was concern as to why children got into trouble. The development of psychoanalysis gave us a much better understanding about the nature of childhood development and emotional problems. Also, in the first decade of this century, psychological tests were developed to help determine which children would not benefit from a regular school curriculum and therefore be better educated with special education. Around this time the mental hygiene movement, dedicated to improving the conditions in mental hospitals and reducing the stigma of mental illness, started, and this association has since become the National Association for Mental Health. Probably the single greatest influence in bringing to awareness the magnitude of childhood emotional problems was the adoption of compulsory education. Children who were previously left to grow up on the farm or even stay up in the attic now had to attend school and become a visible member of society.

From these roots sprang the child guidance movement of the 1920's, which focused on the team approach in helping children with problems. Child psychiatrists, social workers, and psychologists joined forces to understand the child and his environment and work with both in resolving his problems. The Social Security Act of 1935 allowed children to remain with their mothers, children previously placed in orphanages for parental neglect and deprivation. Orphanage institutions gradually changed into residential treatment centers with a shift from lay care-givers to professional care and treatment. Through the residential treatment programs, the environment became a major therapeutic force and supported individual psychotherapy. These programs were based on the observation that many children need more than love to conquer their problems. They also served as the training ground for many child psychiatrists. Child psychiatry became an official sub-speciality of psychiatry in 1958. Child psychiatry, then, is a product of this century and is one of the newest specialities of medicine.

From the early part of the twentieth century to the present, increasing emphasis has been placed on socio-cultural factors in the development of mental illness and maladjustment. One of the strongest voices early in this century was that of Dr. Adolph Meyer, Professor of Psychiatry at Johns Hopkins University. He emphasized the importance of appreciating the total individual and his environment—the biologic, psychologic, and social. The child guidance movement also had major impact in emphasizing the total individual and the importance of environment in personality development and problems.

The two World Wars had great influence on mental health programs. The First World War aroused great public concern about mental health and rehabilitation and helped to dispel some feelings of stigma. The term "shell-shock", later changed to "war neurosis", emphasized that reactions to stress were of considerable importance in causing problems. These problems led to the use of short-term therapy and the early use of group methods. It also stimulated advances in the education of mental health workers, especially psychiatric social workers. The Second

World War brought into even sharper focus the need for mental health professionals and increasing governmental responsibility in meeting mental health needs.

In the early 1940's there were only about 3,000 psychiatrists in the United States to serve both the civilian and military populations. In 1942 the Army Medical Corps established a neuro-psychiatric branch, and the war gave psychiatry a much firmer support among civilian and military leaders. Public concern was especially aroused with the awareness that about 1,800,000 of 4,800,000 men had been rejected for emotional and educational problems, and 40 per cent of medical discharges were for psychiatric reasons. The end of the war saw the development of new professional organizations in psychiatry and advances in mental hospital practice. The therapeutic milieu characterized by open wards, free communications between staff and patients, and the participation of patients in decision-making represented a major move from custodial to therapeutic care.

Studies of populations make it clear that large numbers of our adult population have emotional and adjustment problems that interfere with functioning. Over half of all the hospital beds in the United States are occupied by patients with mental illness. One study, the Midtown Manhattan Study by Srole in 1962, revealed that 81 per cent of the population examined had mild to incapacitating emotional problems.

Children do not escape either. Studies indicate that 20 per cent of our children have adjustment problems and that 10 per cent of all school-age children have emotional problems requiring some kind of mental health assistance.[2] It is estimated that as many as one-half million children in this country suffer from psychosis and borderline psychotic conditions and that another million are affected with personality and character disorders. Among the 15 million youngsters in the United States who are being reared in poverty, one out of three has serious emotional problems that need attention. Suicide is the fourth ranking cause of death between the ages of 15 and 19, and the second leading cause of death in the college-age group. It is estimated that only five per cent of the children in the United States who need psychiatric help are getting it. The rest carry their problems with them into adulthood and may eventually be counted among the one million Americans confined in mental hospitals, the three million treated as psychiatric outpatients, and the millions more who never receive any help at all.

What about Utah? Utah has its share of these problems, with approximately 50,000 children having moderate to severe emotional difficulties. A relatively small per cent of these children are receiving the help they need from the facilities available. Over the past five years in Utah, the average drop-out rate from school has been almost 20 per cent.[3] About half of these children fail to adapt productively to life and require state funds for maintenance of themselves and their families. According to the Utah State Board of Mental Health, of the 10 per cent of our population (or 110,000 people) who are in need of mental health assistance, only about 10 per cent of this number (10,000 people) received help last year from both public and private resources. This leaves large numbers of people whose needs are not met and whose lives are not as happy and productive as they might be.

We can look at several areas of human problems as indices of emotional difficulty and maladjustment. The incidence of suicide in Utah is slightly higher than in the nation as a whole. According to the State Division of Mental Health, the incidence of self-inflicted deaths in teenagers and young adults this year may be the leading cause of death in this age group.[4] The incidence of divorce in Utah is also slightly higher than the national average. Crime is slightly lower, and the illegitimacy rate is significantly lower. It is interesting to note, however, that the rate of illegitimacy in Utah has significantly increased during the past seven years.

Figures from the United States Office of Education, Bureau of the Handicapped, in 1967, indicate that it costs a state approximately $185,000 to support a child for his expected lifetime after high school and that there is a $240,000 loss of income by the individual if he is not productive. Considering loss in state and federal taxes, direct cost to the

state for care, and indirect cost to the state in loss of the productivity of the individual, this represents a financial catastrophe! Spending some money on needy children in the early years would appear to be a most timely investment and the returns would be many times the amount of money that it costs.

The most significant legislation in the meeting of these needs occurred in 1963 when Congress passed President Kennedy's Community Mental Health Centers Act. This was augmented in 1965 with legislation providing money for staffing of these centers.

The basic philosophy of community mental health focuses on three approaches. Primary prevention promotes mental health and avoids the onset of emotional problems, catches problems "up-stream" and this lowers the incidence of problems. Secondary prevention is the early identification of problems with prompt and effective treatment. This reduces the prevalence of emotional disorders. Tertiary prevention means effective rehabilitation, thereby reducing the amount of residual disability from mental disorders. The five basic services provided by community mental health include inpatient services, outpatient services, partial hospitalization such as day care or night care, emergency services 24 hours a day, and consultation and education services. The latter address themselves to primary prevention which is seen by many as the best long-range solution to the problems we face today.

A major goal of community mental health programs has been to curtail the centralized placement of patients with serious emotional problems far away from their homes but instead, to keep them within the community. This approach provides less disruption to patients' lives and helps them maintain important relationships with families and friends. In addition, the decentralization of care and treatment helps communities to maintain a sense of responsibility and serves to avoid "the closing of ranks" behind the patient if he leaves the community. These goals are seen to be highly important in the treatment, rehabilitation, and successful integration of formerly disturbed patients back into the community where they can be productive and contributing individuals.

It is evident that the provision of these various services requires the efforts of many types of mental health professionals, each functioning and contributing within the realm of his training and experience. However, cooperation among mental health professionals alone is not enough to meet the mental health needs of patients and their families. A really effective approach also involves other significant care-givers in the community. These include the schools, the churches, and the medical profession. Studies indicate that troubled people often turn to the clergy. The clergy outnumber psychiatrists 35 to 1, and they are therefore in a very significant position to render assistance. One large study indicates that 42 per cent of people who were troubled first went to the clergy, 29 per cent to general practitioners, 18 per cent to psychiatrists or psychologists, and 10 per cent to social agencies and marriage counselors.[5] More psychiatry is now being taught in our medical schools than at any time in the past, and many physicians in recent years have become especially interested in psychiatry. This is now the third largest medical specialty, surpassed only by internal medicine and surgery.

During the past decade mental health professionals have become increasingly aware of the important role of teachers in the promotion of mental health, good social adjustment, and the prevention of emotional problems in children. Education provides the only compulsory professional contact that our culture has with children, and therefore our schools are in a singularly key position to help meet these goals.

Last year the Utah State Mental Health Task Force examined the needs and the services provided in Utah. Several sections of their report emphasize the importance of cooperation and working together. "There is now clear evidence that it is possible to prevent the development of many psychotic disorders in children. These disorders are relatively unresponsive to treatment of any but the most prolonged, extensive and expensive type. Obstetricians, pediatricians and related professionals are particularly well placed to identify these problems. Programs such as Headstart are in a position to assist in providing developmental experiences which are

vital to the growth of normal personalities when the home is deficient. The Task Force recommends that programs such as Headstart be given supporting consultation and treatment services. Parental and child care conferences and clinics or other pre-school groupings also offer opportunities to mental health specialists for early detection of emotional disturbance in children. The population most in need of this help has the least capacity to understand and master the complicated procedures associated with securing basic medical and social services." The Task Force also focused directly on the importance of cooperation. "Testimony given to the Task Force, as well as the experiences of its members, makes clear that rivalries exist between agencies which drain energy from constructive pursuits of planning, coordination, prevention and direct patient care. Professionals in the mental health disciplines must resolve their personal and institutional rivalries; clinical workers and political leaders must learn to communicate effectively and plan together. It is the patient in need of service and the public funding the service who are penalized when dissension and distrust exist between agencies and individuals providing health services. The Task Force feels that an effort must be made to utilize professionals according to their individual and professional capabilities to meet the mental health needs of the people, rather than the needs of any one profession."[6]

How can we achieve cooperation? What are the ingredients of cooperation? Certainly, cooperation is dependent on communication —honest, open, and clear expression of what we know and how we feel. Without this, people cannot work well together. Trust is equally important. We must trust ourselves to effectively meet the role outlined for us and trust others to competently and effectively perform their role. We must also trust ourselves and others to not attempt domination or unjust control. Another ingredient is respect—respect for others' abilities and special contributions and a healthy self-respect for our own efforts in meeting goals. Finally, each party in a cooperative effort must feel individually adequate to meet demands. With a sense of adequacy there is much less concern about either domination or dependency.

Because these characteristics—communication, trust, respect, and a sense of adequacy —are mainstays of mental health, we might conclude that cooperation *is* mental health. Emotional problems, a part of human life since recorded history, are now better understood than ever before. Public awareness and professional cooperation will allow us to use this understanding to better meet the vast need. •

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Time is well spent in reviewing Old World experience. Their lessons can keep us from learning some of ours the long hard way.

OUR COUNTRY IS CURRENTLY considering major revisions in the delivery and financing of health care. These revisions are needed because of inadequate medical services to the core areas of large cities and to rural communities.

Rapidly increasing numbers of patients are unable to meet the rising costs of medical care so government financing of medical care is receiving a great deal of attention. The rate of growth of the patient population is outstripping the rate at which new doctors, who actually treat patients, are being trained by medical schools, especially in the field of family practice. Family doctors are needed for the general management of our population's medical needs. Doctor hopping from one specialist to another unnecessarily, frequent and prolonged hospitalizations with excessive and expensive duplication of examinations, increase the cost of providing medical care and are an outrageous burden on the taxpayer. To assist in this dilemma, government is looking for ways to finance and promote the education of effective, responsible family doctors. There are far too few medical students choosing family practice. Currently, about 10 per cent of physicians are listed as General Practitioners and the majority of these are over 45 years of age. This means a disastrous shortage of family physicians by the end of the next decade. The status of the family doctor must be significantly upgraded and recognized by the medical students and the medical society in general as a first rate specialist before sufficient numbers of medical students will elect to go into this field. The family doctor can manage about 85 per cent of all disorders by himself and should continue in the treatment of the remaining 15 per cent with the assistance of a specialist.

Because the American Academy of General Practice is involved in the planning of legislation by Congress to organize and finance more effective medical care, it undertook a tour of European medical facilities to gain first-hand information regarding the experience of other governments with this problem. We wanted to see how the General Practitioner fit in their present programs and also to hear their recommendations.

Our delegation was led by Mac F. Cahal, J. D., who is the executive director of the Academy. The fourteen delegates were selected because they were either state or national presidents of the Academy or because they were nominated by the leaders of a state chapter. We visited leading physicians, U. S. Embassy representatives, outpatient facilities and major hospitals in Lisbon, Madrid, Belgrade, Rome, Munich, Salzburg, Geneva and Paris.

What does a European do if he needs medical attention? If he suffers a major trauma, such as an auto accident, he is taken directly to the emergency room of a hospital, as are other major medical emergencies. The patient who is not obviously critically ill is seen by a general practitioner. If the general practitioner thinks the patient needs to be hospitalized, he is referred to a hospital. The

local doctor is not involved in hospital treatment. It was the unanimous opinion of the specialists we visited that this approach is wrong and they have already introduced bills in their legislatures to allow the primary physician to continue treating the patient when he is hospitalized, using the hospital-based specialists when indicated. The present arrangement is too expensive and clumsy. There are many reasons why this is so. For example, if a patient has a condition requiring hospitalization, the medical history is not readily available to the hospital-based physician, and there is needless duplication of tests and delay in therapy. The hospital stay is usually prolonged because the hospital physician will not be able to follow the patient once he is out. Patients undergo considerable anxiety when turned over to a doctor they do not know and in whom they have no faith.

The Minister of Health in Yugoslavia, a Minnesota-trained surgeon, as well as several other physicians elsewhere in Europe had the opinion that the family doctor should have residency training comparable to other specialists. A doctor who had no hospital privileges was generally considered second rate. They also had problems with the distribution of doctors. For example, there are over 100 unemployed doctors in Belgrade and at the same time there are rural communities with no doctor available. In Yugoslavia, as in other parts of Europe, the doctor is usually paid out of taxes of his patients. In the poor rural areas, patients cannot afford to hire a doctor. Unfortunately, the local MD gets paid the same by the government, regardless of the amount of attention he gives his patient.

As a rule, in Europe, a mother can expect to stay in the hospital a week or two postpartum. Hospital-based doctors there said this was necessary because of the lack of medical care for outpatients. In the U. S., the mother goes home after three days. As it is here in America, some patients abuse their Medicare by going from one doctor to another, each doctor repeating examinations done by another and none aware of the overall medical problems. But most patients do not like to go to all sorts of doctors. This can result in the neglect of their case with disastrous results, such as tetanus, pertussis, and advanced disease if the doctor they happen to see is not trained to supervise their general health care.

I do not think we should look to European medicine as a model for our system of medical care. In my opinion, the primary physician should be the family doctor who is specially educated to manage the delivery of overall medical care. It must be his responsibility to make sure his patients are properly and promptly treated and that adequate preventive medicine is practiced. It should also be his responsibility to supervise the medical financing and expenses for the patient and the community.

The United States is the world leader in medical knowledge and technology. Our doctors are better equipped and better trained. Our populace is much better informed and expects more from doctors. Unfortunately, there are too few doctors who are effectively and directly treating patients. There are too many who are ineffective because of mental disorders, too large a percentage in research, and too many who glut popular specialties. I think this is disastrous for the individual doctor and the community.

We must train physicians to meet regional and local needs. Because of the great amount of time and money involved, the choice of specialty training cannot be left to the medical student who is poorly informed or misinformed. A large part of the residency training of those doctors aiming for practice in the community should be done there. •

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UTAH

Intermountain Regional Medical Program's Diabetes Center

What's a person to do? Recently diagnosed as having diabetes mellitus, the new diabetic is at best inadequately informed and unadjusted. He is told his disease is manageable and that he carries a major amount of medical responsibility in maintaining and regulating his health. While in the hospital the new diabetic's physician directs nursing and dietary personnel to make information concerning diabetes self-care available to the patient. The diabetic is instructed in insulin administration and urine testing. His physician is able to give him limited instruction and encouragement.

With this introduction and orientation about his disease, the diabetic is charged with his own urine testing, injecting his own insulin, regulating his activity, choosing his diet, and even altering his insulin dosage on occasion. He must act as his own laboratory technician, nurse, dietitian, and even to a great extent, physician. Finding and taking time to assist 40,000 Utah diabetics (there are more than three million known diabetics in the United States), and in most cases their families, in adjusting to a new life style are the medical profession's major obstacles in achieving adequate diabetic self-care. Properly controlling the seventh leading cause of U.S. deaths requires time, patience, a great deal of repetitious effort, and a close patient-physician relationship which must be fostered by mutual understanding and cooperation.

A 1970 University of Utah Medical School study of the extent to which hospitalized diabetics were being educated in Salt Lake County hospitals showed "only about 50 per cent of these diabetics receive more than a token amount of teaching". Regional and national studies conclude that longtime diabetics have only a limited understanding of their disease and that with greater understanding, problems of reactions and acidosis could be avoided.

Aware of the situation because of their professional interest, knowledge, skill, and their participation in and coordination of an annual Utah diabetic summer camp, University of Utah College of Medicine assistant professors Dana Clarke, MD; Marvin J. Rallison, MD; and Mrs. Barbara Prater, MS, assistant professor at the University of Utah College of Nursing, began seeking solutions. After investigating local, state, and regional diabetes education programs it was found that the quality and quantity of instruction varied greatly. In most hospitals, where there are no organized programs, the nurses' and doctors' teaching time was at the mercy of many required tasks in the daily routine. If the nurse or doctor had a busy day with other sick patients, no teaching occurred. Even if a patient attended organized programs at LDS or Primary Children's Hospitals, it was doubtful whether the five hours of instruction were sufficient. They agreed with the conclusion of the 1970 local study: "It is evident that the individual, ad lib teaching is, at best, mediocre."

Dr. Clark, Dr. Rallison; and Mrs. Prater, working in conjunction with the Intermountain Regional Medical Program (IRMP), formulated a program to meet the Utah need. The proposed project was submitted for approval November 1, 1970, and was funded by the IRMP April 1, 1971. The program is similar to and based on an existing regional center for diabetic and medical personnel education established in Minneapolis, Minnesota, in 1967. The objectives of the Utah project are the same as those of the Minnesota center: (1) to provide the practicing physician with a new resource center that can assist him in the management of his diabetic patients; (2) to improve the health of diabetic patients by stimulating their interest in and knowledge of their disease and its management; (3) to establish an educational center where nurses, dietitians, and physicians can obtain comprehensive training in the management of diabetic patients; and (4) to assist physicians in the early identification of the diabetic and to educate the general population in regard to the nature and prevalence of the disease.

Located in Salt Lake City at 1002 East South Temple Street, the Diabetes Center opened its doors February 7, 1972. The remodeled third floor east wing of the Holy Cross School of Nursing Building houses the Center. The facility will not only offer classes and information to diabetics and their families but will provide a unique five-day living-in experience for participants. While at the Center personalized self-management instruction and counseling will be given by a team of University of Utah physicians, nurses, and dietitians.

Patient classes will be conducted at the Center on a scheduled basis, with enrollment limited to twelve patients and one member from each of their families. Patients and family members will reside at the facility during the five-day course. The small patient number permits significant individualization in teaching and allows adaptation of a diabetic management program to the individual patient needs rather than altering the patient's way of life to a rigid, uncompromising therapeutic schedule.

The Center's services will be available to newly discovered diabetics as well as established diabetics whose knowledge of their disease is incomplete or whose self-care and management are a problem. The program will be open to all diabetics in the Intermountain Region (juvenile onset, adult onset, insulin requiring, non-insulin requiring, labile, stable, mild or severe). But all patients must be referred by their private physicians or primary care facilities.

During his stay at the education center, the patient will undergo thorough re-evaluations including a general physical exam, an assessment of the late manifestations of diabetes, an evaluation of his social situation, educational background and intelligence, and an evaluation of the level of "control" of the disease. Throughout the course, each patient will test his urine, have indicated blood sugars drawn, select foods from liberal cafeteria assortment, discuss food selections with health professionals, be involved with adjustments in both insulin dosage and dietary regimen, have available recreational and exercise facilities, partake in discussions with other diabetics and Center personnel, and function in the usual activities of daily living and self-care. At the end of the course the patient will be referred back to his physician with an evaluation of his progress and a summary of his accomplishments.

The Center will also facilitate an education program for allied health personnel. A five-day course designed and directed to further the training of nurses, dietitians, nutritionists, and others who are involved in the care of diabetic patients will be available. The curriculum is designed to convey the most current knowledge and teaching technics to those concerned with diabetic instruction.

It is hoped that this training will help by both strengthening existing hospital diabetic teaching programs and by facilitating the establishment of other training programs in the Intermountain Region. The Diabetes Center, a first for the nation as well as Utah and the Intermountain Region, offers a service and is a primary resource for the physician and diabetic patient.

WYOMING

Dr. Treloar Lauded for Years of Medical Service

Dr. O. L. Treloar of Afton, Wyoming retired February 1 after 42 years of practicing medicine in Afton. Since he started practice in Star Valley in 1929, he has delivered more than 3,200 babies.

The 70-year-old general practitioner set up his office on Afton's Main Street in 1929 and a few years later established the Valley General Hospital where he practiced with the late Dr. S. H. Worthen and later with Dr. O. D. Perkes. When Dr. Worthen was drafted into the U. S. Army at the outset of World War II, Dr. Treloar provided all medical care for the entire valley for four years. In 1944, he delivered a record 181 babies, an average of one every other day.

When Dr. Treloar announced his retirement, Afton's weekly newspaper, the *Star Valley Independent*, paid him tribute. The newspaper's December 30, 1971 editorial noted, "Thousands have benefitted from his medical and surgical skills through the years. He, and our other local doctors, have always carried a heavy load of work, making many and great sacrifices in their personal lives. Their efforts have resulted in saving hundreds of lives, as they have used their skills unselfishly.

"The magnitude of gratitude felt by the people of the valley was expressed on November 21, 1969, when 490 persons turned out to honor Doctor Treloar at a special appreciation dinner to mark the 40th anniversary of his medical practice. The highlights of his medical career, as well as his civic contributions, were reviewed and many fine tributes were paid to the doctor and his good wife."

Dr. Treloar, who has limited his practice since 1955 because of ill health, has been extremely active in Afton civic affairs. "He has always been an energetic and vigorous leader in pressing for progress and improvement."

Wyoming Member A Guest Lecturer

Loran B. Morgan, MD, a Torrington, Wyoming ophthalmologist was recently a guest faculty member at the University of California Medical School. He lectured in a short course entitled, "Recent Advances in Ophthalmology", where he presented two formal papers, one of which concerned the origin and uses of the Morgan Therapeutic Lens, which he recently developed.

NEW MEXICO

Dean of School of Medicine Presented Award

Robert S. Stone, MD, dean of the University of New Mexico School of Medicine was presented the First Annual New Mexico "Citizen of the Year" Award by the Albuquerque Board of Realtors on January 20. In citing Dr. Stone for his achievements, Mr. Jack Elliott, president of the Board, said that through Dr. Stone's efforts "New Mexico is expected to develop into a major world center for research and treatment of cancer. Recognizing the scientific impact of the Los Alamos Meson Physics Facility, Dr. Stone organized the scientists in the western region to supply this new scientific tool to alleviate suffering in cancer victims. He is responsible for development of a Regional Cancer Research Center at the University, a facility necessary in providing a logistical base for treatment of cancer patients."

A native of New York City, Dr. Stone has compiled an outstanding record in contributions to

medicine. Under his leadership the School of Medicine has been a model for innovative medical education and has made significant impact in such hard-to-solve problems as heroin addiction, mental health, and chronic renal and heart disease. Through his encouragement a pilot experiment in health care was established in Estancia, New Mexico; it is operated by a nurse practitioner and has become a model for the nation.

Dr. Stone is acutely aware of the responsibility of producing physicians who are both empathetic and competent. And at the same time he concerns himself with the problems of rural health care, drug abuse, cancer eradication, infant mortality, and many other medical problems. Several times a year visitiors come to the School of Medicine to be exposed to the ideas and enthusiasm generated by its faculty.

Governor Proclaims Family Doctor Week

More than 220 physicians from 37 states and Canada gathered in Denver at the end of January for six days of intensive postgraduate studies, which marked the ninth annual Family Doctor Week. Governor John A. Love, urging health conservation by regular medical care, proclaimed January 23-29 as Family Doctor Week in recognition of the 18th Annual General Practice Review which met at the University of Colorado Medical Center. The intensive review course covering major fields in medicine and surgery and presented by a total of 75 faculty members of the School of Medicine will be repeated twice during the year—February 7-12 and June 12-17—to meet the growing demand by practicing physicians throughout Colorado and the nation.

Governor Love's proclamation of Family Doctor Week called on all Coloradans to "safeguard their precious heritage of good health by placing themselves under the regular preventive and therapeutic care of a personal or family physician". He noted that the health and well-being of its citizens is "the greatest and most basic resource" of the state and the family doctor is "the means by which this vital resource is best conserved and extended". The Colorado medical profession for several decades has been "in the forefront leadership of the ongoing effort to protect and enhance the quality, knowledge and skills of the family practice of medicine," the governor said.

Directing the course again this year was C. Wesley Eisele, MD, associate dean of the Medical School in charge of its year-round program of postgraduate medical education for practicing physicians and surgeons. The Annual General Practice Review, Dr. Eisele said, is one of the most popular courses in the program. Beginning in 1953, the Review was presented once each year. The schedule was extended to two sessions—January and June—in 1963, and this year is the second in which three sessions have been required to accommodate physician demand. As Governor Love commented in his proclamation, the review and refresher course is "part of the lifelong postgraduate education process which equips the Doctor of Medicine for maximum effective care of his patients".

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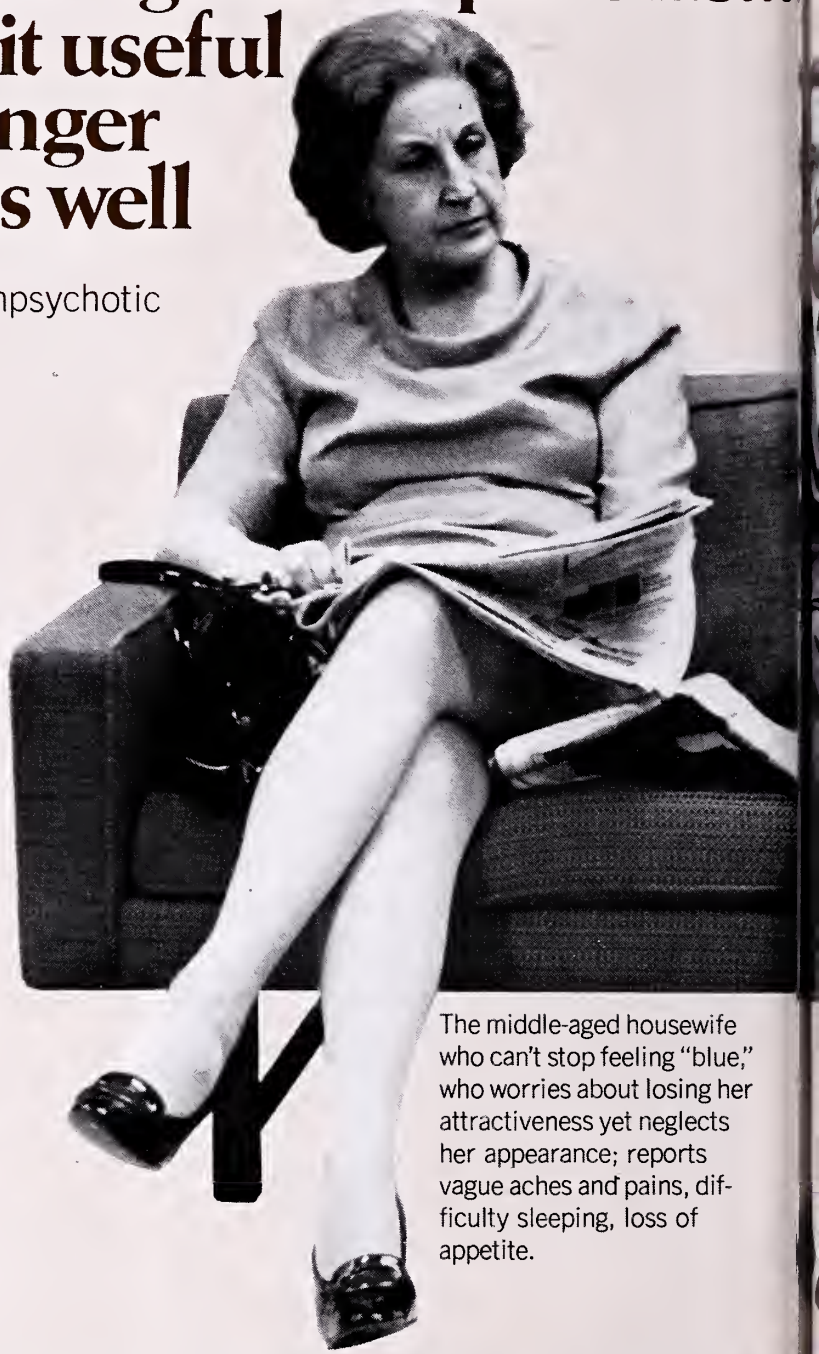
- helps ease mild to moderate nonpsychotic depression *and* related anxiety
- helps assure a good night's rest



The middle-aged housewife who can't stop feeling "blue," who worries about losing her attractiveness yet neglects her appearance; reports vague aches and pains, difficulty sleeping, loss of appetite.

INDICATIONS: Useful in the management of depression, both acute (reactive) and chronic; particularly useful in the less severe depressions and where the depression is accompanied by anxiety, insomnia, agitation, or rumination; also useful for management of depression and associated anxiety accompanying or related to organic illnesses.
CONTRAINDICATIONS: Benactyzine hydrochloride: Glaucoma and previous allergic or idiosyncratic reactions to benactyzine hydrochloride or related compounds. **Meprobamate:** Acute intermittent porphyria and allergic or idiosyncratic reactions to meprobamate or related compounds such as carisoprodol, mebutamate, tybamate, carbromal.
WARNINGS: The following information on meprobamate pertains to 'Deprol' (meprobamate + benactyzine hydrochloride): **Meprobamate:** *Drug Dependence:* Physical and psychological dependence and abuse have occurred. Chronic intoxication, from prolonged use and usually greater than recommended doses, leads to ataxia, slurred speech, vertigo. Carefully supervise dose and amounts prescribed, and avoid prolonged use, especially in alcoholics and addiction-prone persons. Sudden withdrawal after prolonged and excessive use may precipitate recurrence of pre-existing symptoms (e.g., anxiety, anorexia, insomnia) or withdrawal reactions (e.g., vomiting, ataxia, tremors, muscle twitching, confusional states, hallucinosis; rarely convulsive seizures, more likely in persons with CNS damage or pre-existent or latent convulsive disorders). Therefore, reduce dosage gradually (1-2 weeks) or substitute a short-acting barbiturate, then gradually withdraw. *Potentially Hazardous Tasks:* Driv a motor vehicle or operating machinery. *Additive Effects:* Possible a tive effects between meprobamate, alcohol, and other CNS depress or psychotropic drugs. *Pregnancy and Lactation:* Safe use not establish weigh potential benefits against potential hazards in pregnancy, nurs mothers, or women of childbearing potential. Animal data at five tir the maximum recommended human dose show reduction in litter s due to resorption. Meprobamate appears in umbilical cord blood at near maternal plasma levels, and in breast milk at levels 2-4 times t of maternal plasma. *Children Under Six:* Drug not recommended.
PRECAUTIONS: Meprobamate: To avoid oversedation, use lowest ef tive dose, particularly in elderly and/or debilitated patients. Consider sibility of suicide attempts; dispense least amount of drug feasible at one time. To avoid excess accumulation, use caution in patients with c promised liver or kidney function. Meprobamate may precipitate seizu in epileptics.
ADVERSE REACTIONS: Nausea, dry mouth, other g.i. symptoms; cope; one case each of severe nervousness and loss of power of con tration. The following side effects, which have occurred after administra of its components alone, have either occurred or might occur when combination is taken. **Benactyzine hydrochloride:** Benactyzine hy chloride alone, particularly in high dosage, may produce dizziness, thou blocking, a sense of depersonalization, aggravation of anxiety, or dis-

When mild depression and associated anxiety interfere with living

DEPROL®

(meprobamate 400 mg + benactyzine hydrochloride 1 mg)

The junior executive crushed by his repeated failure to be promoted and anxious about the future; complains to you of listlessness, early-morning awakening.

The young widow whose grief has persisted too long, is pessimistic and fearful about what lies ahead, has lost interest in everything; is preoccupied with vague physical ailments, has crying spells.

of sleep patterns, and a subjective feeling of muscle relaxation. may also be anticholinergic effects such as blurred vision, dryness uth, or failure of visual accommodation. Other reported side effects included gastric distress, allergic response, ataxia, and euphoria. **obamate:** *Central Nervous System:* Drowsiness, ataxia, dizziness, d speech, headache, vertigo, weakness, paresthesias, impairment of accommodation, euphoria, overstimulation, paradoxical excite- fast EEG activity. *Gastrointestinal:* Nausea, vomiting, diarrhea. *Car- scular:* Palpitations, tachycardia, various forms of arrhythmia, tran- ECG changes, syncope; also, hypotensive crises (including one fatal . *Allergic or Idiosyncratic:* Usually after 1-4 doses. Milder reactions: urticarial, or erythematous maculopapular rash (generalized or ned to groin). Others: leukopenia, acute nonthrombocytopenic pur- petechiae, ecchymoses, eosinophilia, peripheral edema, adenopa- ever, fixed drug eruption with cross reaction to carisoprodol, and sensitivity between meprobamate/mebutamate and meprobamate/ omal. More severe, rare hypersensitivity: hyperpyrexia, chills, angio- otic edema, bronchospasm, oliguria, anuria, anaphylaxis, erythema forme, exfoliative dermatitis, stomatitis, proctitis, Stevens-Johnson rome; bullous dermatitis (one fatal case after meprobamate plus nisolone). Stop drug, treat symptomatically (e.g., possible use of phrine, antihistamines, and in severe cases corticosteroids). *Hema- ic:* Agranulocytosis and aplastic anemia (rarely fatal), but no causal relationship established. Rarely, thrombocytopenic purpura. *Other:* Exacerbation of porphyric symptoms.

USUAL ADULT DOSAGE: One tablet three or four times daily, which may be increased gradually to six tablets daily and gradually reduced to maintenance levels upon establishment of relief. Doses above six tablets daily are not recommended.

OVERDOSAGE: Overdosage of 'Deprol' (meprobamate + benactyzine hydrochloride) has not differed substantially from meprobamate overdosage: **Meprobamate:** Suicidal attempts with meprobamate, alone or with alcohol or other CNS depressants or psychotropic drugs, have produced drowsiness, lethargy, stupor, ataxia, coma, shock, vasomotor and respiratory collapse, and death. Empty stomach, treat symptomatically; cautiously give respiratory assistance, CNS stimulants, pressor agents as needed. Meprobamate is metabolized in the liver and excreted by the kidney. Diuresis and dialysis have been used successfully. Carefully monitor urinary output; avoid overhydration; observe for possible relapse due to incomplete gastric emptying and delayed absorption. REV. 10/71

Before prescribing, consult package circular or latest PDR information.

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Empirin Compound with Codeine No. 3 contains codeine phosphate* (32.4 mg.) gr. ½. No. 4 contains codeine phosphate* (64.8 mg.) gr. 1. *(Warning—may be habit-forming.) Each tablet also contains: aspirin gr. 3½, phenacetin gr. 2½, caffeine gr. ½.

MEDICAL SCHOOL NOTES

University of New Mexico School of Medicine

A new "team approach" to the care of cancer patients is the core of the University of New Mexico's proposed $6 million Cancer Research and Treatment Center in Albuquerque. "Our intention is to help doctors help patients," said Dr. Morton M. Kligerman, director of the Center. A team of specialists at the University's School of Medicine will see cancer patients referred to them and will also travel around the state to visit patients in local hospitals.

In addition to $1 million approved last year by the State Legislature, the University has applied for a $4.5 million federal grant from the National Cancer Institute for construction of the Center. If approved this spring, work could begin next fall, with the five-story building completed by late 1973. The building will extend from the north end of Bernalillo County Medical Center and will be connected to the Medical School by an underground passage. Plans include more than 20 examining rooms, x-ray equipment, radiation treatment rooms, laboratories, and animal research facilities. Building plans do not include beds, as there are believed to be sufficient beds in area hospitals to accommodate inpatients.

The Center is being planned in conjunction with the $56 million Los Alamos Meson Physics Facility under construction now. The Meson Facility is expected, after several years of research and clinical tests, to offer treatment to cancer patients through use of a beam of nuclear particles called negative pi-mesons. Theoretically, this meson beam will be used to treat tumors lying deep within the body by "exploding" them in a controlled burst of energy. Dr. Kligerman, who is also assistant director for radiation therapy at Los Alamos, said the Cancer Center and the Meson Facility should be "uniquely complementary" and that each of the two institutions "must merit support by themselves".

The Cancer Center will use several approaches to cancer treatment besides radiation therapy, such as immunology, chemotherapy, genetics, and other biological studies. The cancer team will begin activity before the building itself is completed, according to Dr. Kligerman. The concentration of specialists at the University offers two distinct advantages: It keeps doctors immediately abreast of most recent developments, and it offers comprehensive diagnosis and treatment to patients in one place and thus at less expense to them.

Although decisions regarding a patient's treatment will be made collaboratively by the team, a patient retains his private doctor to carry out those decisions. In a case where a patient is suspected of having cancer, he may be sent to the University for examination where specialized diagnostic equipment will be available. Since the cancer team will see patients daily, it will offer a tremendous resource to the isolated doctor who may deal with a particular type of cancer once in five years.

In addition to patient care, Dr. Kligerman said the Cancer Center must include laboratory research and clinical investigation to make it successful. "You can't maintain front-line clinical care without maintaining on-the-line research back-up," he said. "If we're only giving care—without maintaining research—we'll always be behind, and that would be deluding the public."

Dr. Kligerman believes that a university is for "discovering new knowledge" in addition to teaching. Insuring that doctors from throughout the state benefit from clinical studies done at the Cancer Center is an extremely important part of the operation. Dr. Kligerman's goal is to deliver "regional medicine", and he plans to work closely with the New Mexico Regional Medical Program in accomplishing this. The team will make site visits to local hospitals, sponsor tumor clinics in isolated areas, and encourage doctors to call in for cancer consultations through a toll-free number at the University.

Governing the affairs of the Cancer Center will be a science advisory committee to include top-rated scientists from throughout the country as well as a public advisory committee made up of local hospital administrators, physicians, and lay citizens. Dr. Kligerman, who resigned his position as chairman of the Department of Radiology at Yale University School of Medicine to accept the directorship of the Cancer Center, will assume his duties here in March. Dr. Louis Rosen, head of the Meson Physics Facility, has called him "one of the world's greatest radiation therapists".

* * * * *

A kidney preservation machine, capable of keeping human kidneys viable outside the body for 24 hours or more, has been purchased by the University of New Mexico School of Medicine with $10,500 given by The Upjohn Company.

The University's transplant team has performed 15 kidney transplant operations since March 1970. Seven of these have been cadaveric transplants in which the kidney of a person who has recently died is transplanted into another person. The time element in cadaveric transplants is critical. The kidneys must be taken from the donor, cross-matched with the recipient by tissue typing, and transplanted all within a few hours. The new kidney preservation machine allows 24 hours, and possibly more, for this process to take place.

The University's MOX-100, made by Waters Instrument Company, stores the kidneys safely by controlling the temperature and keeping plasma flowing through the kidneys. Volume, pressure, acidity, and oxygen content of the plasma are controlled by the machine.

The kidney preservation machine has two units. One is a large hospital console with its own refrigeration unit. The other, a small portable unit weighing approximately 40 pounds, can be easily transported by plane or car to reach a potential donor.

The Johns Hopkins University Information Center for Hearing, Speech, and Disorders of Human Communication has prepared several bibliographies on topics in communication disorders which are available for a small handling charge of from $1.00 to $2.00. For a list of topics and an order form, write: Information Center for Hearing, Speech, and Disorders of Human Communication, 310 Harriet Lane Home, Johns Hopkins Medical Institutions, Baltimore, Maryland 21205.

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Indications: Acute, recurrent or chronic urinary tract infections (primarily cystitis, pyelitis, pyelonephritis) due to susceptible organisms (usually *E. coli, Klebsiella Aerobacter, Staphylococcus aureus, Proteus mirabilis* and, less frequently, *Proteus vulgaris*) in the absence of obstructive uropathy or foreign bodies.

IMPORTANT NOTE: *In vitro* sulfonamide sensitivity tests are not always reliable. The test must be carefully coordinated with bacteriologic and clinical response. When a patient is already taking sulfonamides, follow-up cultures should have aminobenzoic acid added to the culture medium.

Currently, the increasing frequency of resistant organisms is a limitation of the usefulness of antibacterial agents including the sulfonamides, especially in the treatment of chronic and recurrent urinary tract infections.

Free sulfonamide blood levels should be measured in patients receiving sulfonamides for serious infections since there may be wide variations with identical doses; 20 mg/100 ml should be maximum total sulfonamide level, as adverse reactions occur more frequently above this level.

Contraindications: Hypersensitivity to sulfonamides, infants less than 2 months of age (except adjunctively with pyrimethamine in congenital toxoplasmosis), pregnancy at term, and during the nursing period.

Warnings: Safety of sulfonamides in *pregnancy* has not been established. Sulfonamides will not eradicate group A streptococci. Deaths associated with sulfonamide administration have been reported from hypersensitivity reactions, agranulocytosis, aplastic anemia and other blood dyscrasias. Clinical signs such as sore throat, fever, pallor, purpura or jaundice may be early indications of serious blood disorders. Complete blood counts and urinalyses with careful microscopic examination should be performed frequently during sulfonamide therapy.

Precautions: Use with caution when impaired renal or hepatic function, severe allergy or bronchial asthma is present. In glucose-6-phosphate dehydrogenase-deficient individuals, hemolysis (frequently a dose-related reaction) may occur. Maintain adequate fluid intake to prevent crystalluria and stone formation.

Adverse Reactions: *Blood dyscrasias:* Agranulocytosis, aplastic anemia, thrombocytopenia, leukopenia, hemolytic anemia, purpura, hypoprothrombinemia, methemoglobinemia. *Allergic reactions:* Erythema multiforme (Stevens-Johnson syndrome), generalized skin eruptions, epidermal necrolysis, urticaria, serum sickness, pruritus, exfoliative dermatitis, anaphylactoid reactions, periorbital edema, conjunctival and scleral injection, photosensitization, arthralgia, allergic myocarditis. *Gastrointestinal reactions:* Nausea, emesis, abdominal pains, hepatitis, diarrhea, anorexia, pancreatitis, stomatitis. *C.N.S. reactions:* Headache, peripheral neuritis, mental depression, convulsions, ataxia, hallucinations, tinnitus, vertigo, somnia. *Miscellaneous reactions:* Drug fever, chills, toxic nephrosis with oliguria and anuria. Periarteritis nodosa and L.E. phenomenon have occurred with sulfonamide therapy. Sulfonamides bear certain chemical similarity to some goitrogens, diuretics and oral hypoglycemic agents. Goiter production, diuresis and hypoglycemia have occurred rarely in patients receiving sulfonamides. Cross-sensitivity may exist with these agents.

Supplied: Tablets containing 0.5 Gm sulfisoxazole.

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*Koch-Weser, J., *et al.: Arch. Intern. Med.*, *128*:399, 1971.

For nonobstructed cystitis

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4 to 8 tablets *stat*

2 to 4 tablets *q.i.d.*

In acute gonorrhea

(urethritis, cervicitis, proctitis when due to susceptible strains of N. gonorrhoeae)

Sterile Trobicin®
(spectinomycin dihydrochloride pentahydrate)—For Intramuscular injections, 2 gm vials containing 5 ml when reconstituted with diluent. 4 gm vials containing 10 ml when reconstituted with diluent.
An aminocyclitol antibiotic active *in vitro* against most strains of *Neisseria gonorrhoeae* (MIC 7.5 to 20 mcg/ml). Definitive *in vitro* studies have shown no cross resistance of *N. gonorrhoeae* between Trobicin and penicillin.

Indications: Acute gonorrheal urethritis and proctitis in the male and acute gonorrheal cervicitis and proctitis in the female when due to susceptible strains of *N. gonorrhoeae*.

Contraindications: Contraindicated in patients previously found hypersensitive to Trobicin. Not indicated for the treatment of syphilis.

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Warnings: Antibiotics used to treat gonorrhea may mask or delay the symptoms of incubating syphilis. Patients should be carefully examined and monthly serological follow-up for at least 3 months should be instituted if the diagnosis of syphilis is suspected.

Safety for use in infants, children and pregnant women has not been established.

Precautions: The usual precautions should be observed with atopic individuals. Clinical effectiveness should be monitored to detect evidence of development of resistance of *N. gonorrhoeae*.

Adverse reactions: The following reactions were observed during the single-dose clinical trials: soreness at the injection site, urticaria, dizziness, nausea, chills, fever and insomnia.
During multiple-dose subchronic tolerance studies in normal human volunteers, the following were noted: a decrease in hemo-

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single-dose intramuscular treatment

High cure rate:* 96% of 571 males, 95% of 294 females
(Dosages, sites of infection, and criteria for diagnosis and cure are defined below.)**

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No allergic reactions occurred in patients with an alleged history of penicillin sensitivity when treated with Trobicin, although penicillin antibody studies were not performed

Active against most strains of Neisseria gonorrhoeae in vitro (M.I.C. 7.5-20 mcg/ml)

A single two-gram injection produces peak serum concentrations averaging about 100 mcg/ml in one hour (average serum concentrations of 15 mcg/ml present 8 hours after dosing)

Note: Antibiotics used in high doses for short periods of time to treat gonorrhea may mask or delay the symptoms of incubating syphilis. Since the treatment of syphilis demands prolonged therapy with any effective antibiotic, and since Trobicin is not indicated in the treatment of syphilis, patients being treated for gonorrhea should be closely observed clinically. Monthly serological follow-up for at least 3 months should be instituted if the diagnosis of syphilis is suspected. Trobicin is contraindicated in patients previously found hypersensitive to it.

*Data compiled from reports of 14 investigators. **Diagnosis was confirmed by cultural identification of *N. gonorrhoeae* on Thayer-Martin media in all patients. Criteria for cure: negative culture after at least 2 days post-treatment in males and at least 7 days post-treatment in females. Any positive culture obtained post-treatment was considered evidence of treatment failure even though the follow-up period might hove been less than the periods cited above under "criteria for cure" except when the investigator determined that reinfection through additional sexual contacts was likely. Such cases were judged to be reinfections rather than relapses or failures. These cases were regarded as non-evaluatable and were not included. JA72 1848-6

globin, hematocrit and creatinine clearance; elevation of alkaline phosphatase, BUN and SGPT. In single and multiple-dose studies in normal volunteers, a reduction in urine output was noted. Extensive renal function studies demonstrated no consistent changes indicative of renal toxicity.

Dosage and administration: Keep at 25°C and use within 24 hours after reconstitution with diluent.
Male—single 2 gram dose (5 ml) intramuscularly. Patients with gonorrheal proctitis and patients being re-treated after failure of previous antibiotic therapy should receive 4 grams (10 ml). In geographic areas where antibiotic resistance is known to be prevalent, initial treatment with 4 grams (10 ml) intramuscularly is preferred.
Female—single 4 gram dose (10 ml) intramuscularly.

How supplied: *Vials, 2 and 4 grams—with ampoule of Bacteriostatic Water for Injection with Benzyl Alcohol 0.9% w/v.* Reconstitution yields 5 and 10 ml respectively with a concentration of spectinomycin dihydrochloride pentahydrate equivalent to 400 mg spectinomycin per ml. For intramuscular use only.
Susceptibility Powder—for testing *in vitro* susceptibility of *N. gonorrhoeae*.

Human pharmacology: Rapidly absorbed after intramuscular injection. A two-gram injection produces peak serum concentrations averaging about 100 mcg/ml at one hour with 15 mcg/ml at 8 hours. A four-gram injection produces peak serum concentrations averaging 160 mcg/ml at two hours with 31 mcg/ml at 8 hours.
For additional product information, see your Upjohn representative or consult the package insert. MED-B-1-S (LWB)

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OBITUARIES

Utah

William L. Stoops, MD, a Salt Lake City neurosurgeon, died January 17, 1972, at the age of 41. The son of Willis Porter and Miriam Lautzenheiser Stoops, he was born April 9, 1930, in Xenia, Ohio. On December 19, 1953, he was married to Lou Ringo in St. Louis, Missouri.

A graduate of Yale University, Doctor Stoops received his MD degree in 1955 from Washington University School of Medicine and served his internship at Barnes Hospital, both in St. Louis. The following two years he served as a flight surgeon in the U.S. Air Force. He later completed a neurosurgical residency at Upstate Medical Center in Syracuse, New York.

Coming to Utah in 1964, Doctor Stoops commenced a private practice in neurosurgery. He was a staff member of the Latter Day Saints, Primary Children's, and St. Mark's Hospitals and served as a clinical assistant at the University of Utah College of Medicine. Doctor Stoops was certified by the American Board of Neurologic Surgery and was a diplomate of the American College of Surgery. He was a member of the Harvey Cushing Society, the Utah Neurologic Society, and the Salt Lake Surgical Society. He was also affiliated with the Salt Lake County, Utah State, and American Medical Associations. In addition to his professional memberships, he belonged to the Yale Club of Utah.

Surviving the doctor are his widow and two daughters, Katie and Kristie, of Salt Lake City.

Charles Elmer Barrett, MD, a Salt Lake City internist, died January 24, 1972, at the age of 86. Born August 26, 1885, in Logan, Doctor Barrett was the son of Charles Thomas and Sarah Shelton Barrett. He married Odessa Heninger on September 3, 1913. She died in 1957. He then married Lorna Wells on April 21, 1958.

A member of the L.D.S. Church, Doctor Barrett served a mission to Switzerland and Germany. He later graduated from the Utah State Agricultural College with a degree in civil engineering. As an engineer, he supervised the building of many dams and roads still in use in Utah. He also taught science and German at Brigham Young University and Weber State College for ten years. In 1932 Doctor Barrett graduated from the University of Chicago Medical School and began practice in Salt Lake City. He maintained laboratories in this area doing clinical and pathological work for physicians and small hospitals.

Doctor Barrett was a member of the American College of Allergists and the American Geriatrics Society. He was also a member of the Salt Lake County, Utah State, and American Medical Associations. An amateur photographer, Doctor Barrett was a member and officer of the Salt Lake City Photochrome Club.

In addition to his widow, survivors include five sons and daughters: Dr. E. LeVerl Barrett, Mrs. Lyman R. (Lorraine) Feinauer, Mrs. F. W. (Jacqueline) Tadje, all of Salt Lake City; Mrs. John (Fae) Demarest, North Hampton, New Hampshire; and Mrs. H. S. (Marjorie) Allen, Bellevue, Washington. Also surviving are a brother and sister, 21 grandchildren, and six great-grandchildren.

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SOCIETY OFFICERS

Colorado Medical Society

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President-elect: William A. H. Rettberg, Denver.

Vice President: John W. Haskin, Center.

Treasurer: Dwight C. Dawson, Colorado Springs.

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Delegates to the A.M.A.: Gatewood C. Milligan, Englewood, Dec. 31, 1973; Robert E. McCurdy, Denver, Dec. 31, 1973; Ray G. Witham, Craig, Dec. 31, 1972.

Alternate Delegates to the A.M.A.: R. Neil Chisholm, Denver, Dec. 31, 1973; John M. Wood, Englewood, Dec. 31, 1972; William Y. Takahashi, Boulder, Dec. 31, 1973.

Speaker, House of Delegates: James A. Philpott, Jr., Denver.

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Foundation Advocate: Charles B. Kingry, Denver.

Scientific Editor for Colorado and Chairman of the Editorial Board, Rocky Mountain Medical Journal: Douglas W. Macomber, Denver.

Assistant Scientific Editor for Colorado, Rocky Mountain Medical Journal: Carl H. McLauthlin, Denver.

Executive Director: Mr. Donald G. Derry, 1809 E. 18th Ave., Denver. Office Telephone (303) 399-1222.

Montana Medical Association

OFFICERS—1971-72—Terms of Officers and Committeemen expire at the Annual Meeting in the year indicated. Where no year is indicated the term is for one year only and expires at the 1972 Annual Meeting.

President: John Pfaff, Jr., Great Falls.

President-elect: Hollis K. Lefever, Lewistown.

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Assistant Secretary-Treasurer: William E. Hadcock, Conrad.

Delegate to the A.M.A.: Herbert T. Caraway, Billings.

Alternate Delegate to the A.M.A.: Mark B. Listerud, Wolf Point.

Executive Committee: John Pfaff, Jr., Great Falls; Hollis K. Lefever, Lewistown; John R. Burgess, Helena; Robert P. Yost, Missoula; William E. Hadcock, Conrad; Herbert T. Caraway, Billings; Mark B. Listerud, Wolf Point; Richard L. Peterson, Hamilton; John S. Anderson, Helena.

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Associate Editor, Rocky Mountain Medical Journal: Mr. L. Russell Hegland, Billings.

Executive Secretary: Mr. L. Russell Hegland, 1236 North 28th St. (P.O. Box 1692) Billings 59103. Telephone (406) 252-6673.

Nevada State Medical Association

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Volume 69 • Number 4

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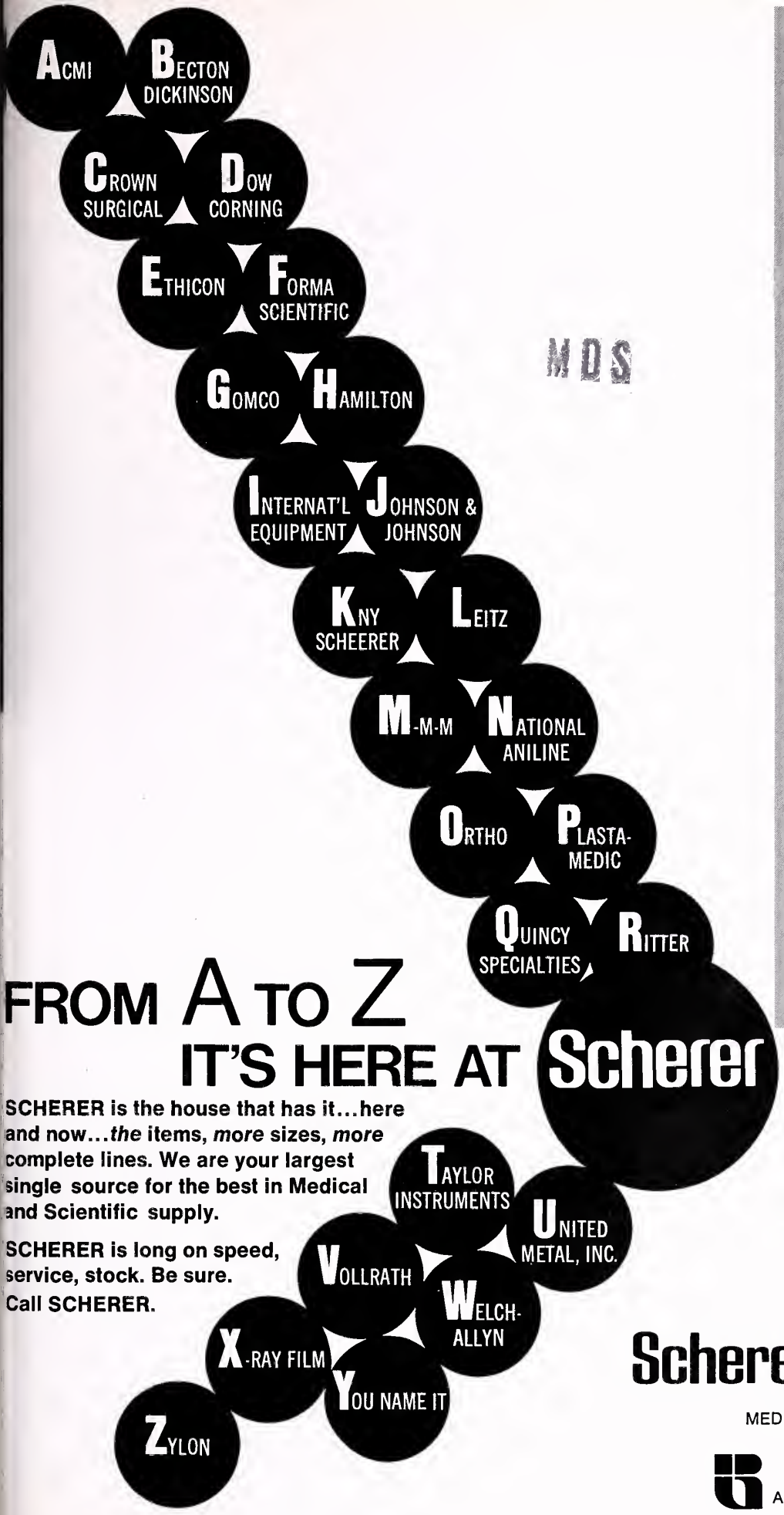

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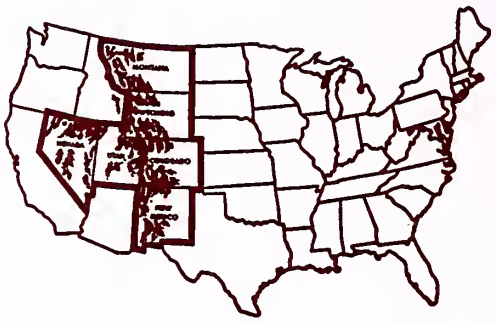

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OUR COVER PHOTO

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To the Editor:

Maybe I'm nuts! I am from the old fashioned school in which an abortion was not tolerated by society unless it was life-saving to the mother. When one delivered a baby, one felt a little better the rest of the day—something concrete had been accomplished and an MD had justified the years he had put into his schooling.

Now, in almost every mail there is an advertisement where one can get abortions done instantly. There is no longer any stigma attached to the operation at all—a patient will walk into the reception room and announce that she "has just had an abortion" in a loud voice, in front of all the other patients. All of us are supposed to knock ourselves out and help in free V.D. clinics for the poor misfits.

As far as I am concerned I think that some of the old laws against cohabitation could be revived and the police could check out the lack of any marriage certificates on people in the motels, ski lodges, and various "Hippy" conveyances.

Incidentally, this roommate business in college dorms certainly does not meet the laws that our parents laid down (and they weren't so dumb).

Society is letting a bunch of young "punks" do as they please. The only thing that is illegal nowadays is having intercourse in public—they'll arrest you for that. However, with the new Sperm Bank that began advertising last week there isn't any need for intercourse at all. I wonder if in time the kids will be born without a "belly button" as in the other case of immaculate conception.

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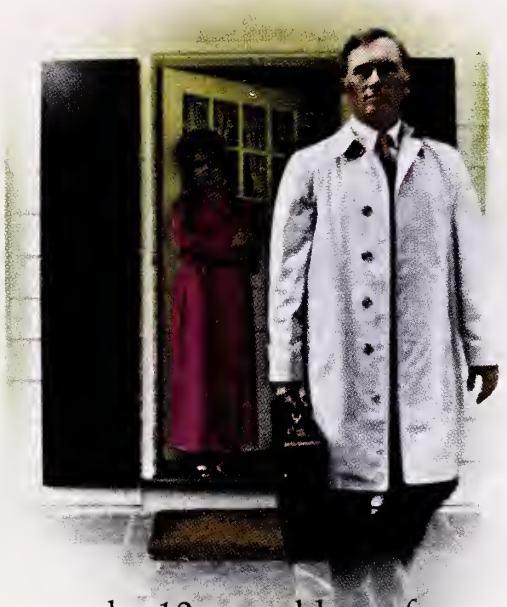
When he goes back to work, will his old tensions go back with him?



When it's mandatory to keep the post-coronary patient calm, consider Valium® (diazepam).

Although he's promised to take it easy back on the job, you know he's going back to the same stressful circumstances that may have contributed to his hospitalization. Your prescription for Valium can calm him. Lessened anxiety and tension can help in decelerating his former pace. During the period of readjustment Valium helps quiet undue anxiety.

For moderate states of psychic tension, 5-mg or 2-mg Valium tablets *t.i.d.* or *q.i.d.* can usually provide reliable relief. For severe tension/anxiety states, the 10-mg tablets often produce desired results.

The most commonly reported side effects are drowsiness, ataxia, and fatigue. Until individual response is determined, caution patient against driving or operating dangerous machinery.

Valium® (diazepam)

For the tense cardiac patient who must be kept calm

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

Dosage: Individualize for maximum beneficial effect. *Adults:* Tension, anxiety and psychoneurotic states, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed; adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d.; adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. *Geriatric or debilitated patients:* 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) *Children:* 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

Supplied: Valium® (diazepam) Tablets, 2 mg, 5 mg and 10 mg; bottles of 100 and 500. All strengths also available in Tel-E-Dose™ packages of 1000.

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"The history of science, and in particular the history of medicine . . . is . . . the history of man's reactions to the truth, the history of the gradual revelation of truth, the history of the gradual liberation of our minds from darkness and prejudice."

– George Sarton, from "The History of Medicine Versus the History of Art"

Should nongovernment scientists and physicians play a role in drug regulation?

Opinion

Results of a questionnaire to 7000 physicians:

82.8%
Physicians should play a role

78.3%
Independent scientists should play a role

69.8%
Medical academicians should play a role

Opinion & Dialogue

Dialog

Should nongovernment scientists and physicians play a role in drug regulation?

Doctor of Medicine

Herbert L. Ley, Jr., M.D., M.P.H., Formerly Commissioner, F.D.A. (1968-1969) Currently Medical Consultant

In order for drug regulation to be effective, participation in the regulatory process from nongovernment physicians and scientists must be encouraged. Without such involvement, there will continue to be a high degree of controversy surrounding any regulations promulgated by the Food and Drug Administration.

There are two areas in which participation and communication by nongovernment physicians and scientists could significantly improve the process of regulation. First, scientists and physicians throughout the country could become involved in consulting relationships with the Food and Drug Administration in important scientific areas while regulatory policies are being evolved. If nongovernment professionals could bring their expertise and experience to bear early in the decision-making process, they would have less reason to criticize the final outcome.

Secondly, practicing physicians, academic physicians, and academic-based scientists could make it their business to comment on proposed regulations appearing in the Federal Register. Ideally, a system could be instituted whereby medical, scientific and technical people could see the Federal Register regularly, and provide the Food and Drug Administration with a body of opinion that has so far gone unheard. The FDA is caught among pressures from industry, Congress, the Presidential Administration and consumers. It should also feel pressures from practicing physicians and scientists.

In order to become more involved in these stages of the drug regulatory process, nongovernment physicians and scientists should begin to exercise their influence through their respective professional organizations,

state and national medical societies, and specialty groups. Logically, a letter from these organizations representing a collective opinion has far greater weight in the regulatory process than individual letters. If the Food and Drug Administration receives opinions from these organizations early, before a regulation gets into the Federal Register, they are in a good position to respond with further study and review. Without such dissenting opinions, there is very little incentive to make changes in proposed regulations.

One instance in which practitioners did influence drug regulatory affairs in this way is the recent controversy that arose over the legitimacy of drug combinations. The strong opinion of practitioners on the value of such medication in clinical practice played a very prominent role in making the Food and Drug Administration modify its rather restrictive policy.

Another way in which practitioners can effectively influence drug regulations is by working with drug manufacturers conducting clinical trials of chemotherapeutic agents. When a drug is rated other than effective it may only mean that there is a lack of controlled clinical evidence as to efficacy. Thus, physicians might offer to conduct clinical studies that could help keep a truly effective drug in the marketplace. The treatment of diseases such as diabetes and angina are areas where the practitioner can aid in clinical studies because patients suffering from these diseases are rarely found in the conventional hospital setting.

By working with ethically and scientifically sound study designs in his everyday practice, the practitioner could begin to play an important part in determining official ratings on drug efficacy.

Nongovernment physicians and scientists and the FDA should also improve their lines of communication to the public. The medical community must develop a voice every bit as loud as that of the consumerists, the press, and others who sometimes criticize without complete information. If not, much of wh the medical communi *and* federal regulators will often be represented simplistic and somewh misleading terms.

One illustration of t misuse of the media in th regard is the recall of an coagulant drugs sever years ago. This FDA acti was given publicity by t press and television th went far beyond its pro able importance. The resu was a very uncomfortab situation for the pract tioner who had patien taking these medicatio Since the practitioner a pharmacist had not bee informed of the action b the time it was publicize in most states they we deluged with calls fro worried patients.

The practitioner can a tempt to solve these pro lems of inadequate commu nication in several way One would be the creatio of a communications lir in state pharmacy societie When drug regulation nev is to be announced, the s ciety could immediatel distribute a message to e ery pharmacist in the stat The pharmacist, in turn could notify the physician in his local community s that he and the physicia could be prepared to an swer inquiries from pa tients. Another approac would be to use profes sional publications th practitioner receives.

All of this leads back t my opening contention: drug regulation is to be e fective, timely, and relate to the realities of clinica practice, a better method c communication and feed back must be developed be tween the nongovernmen tal medical and scientifi communities and the regu latory agency.

Maker of Medicine

Henry W. Gadsden, irman & Chief Executive fficer, Merck & Co., Inc.

n my opinion, it is the ponsibility of all physi- ns and medical scientists ake whatever steps they nk are desirable in a law- l regulation-making cess that can have far- ching impact on the ctice of medicine. Yet ny events in the recent t indicate that this is happening. For exam- , it is apparent from g efficacy studies that NAS/NRC panels gave le consideration to the dence that could have n provided by practic- physicians.

There are several current elopments that should rease the concern of cticing physicians about g regulatory affairs. One he proliferation of mal- ctice claims and litiga- n. Another is the effort government to establish relative efficacy of gs. This implies that if hysician prescribes a g other than the "estab- ed" drug of choice, he y be accused of practic- something less than st-class medicine. It uld come perilously se to federal direction of w medicine should be cticed.

n order to minimize this d of arbitrary federal ion, a way must be nd to give practitioners h voice and represen- tation in government affairs. Government must be caused to recognize the essentiality of seeking their views. One of the difficulties today, however, is that there is no way for concerned practitioners to participate in the early stages of decision-making processes. They usually don't hear about regulations until a proposal appears in the Federal Register, if then. By that time a lot of concrete has been poured, and a lot of boots are in the concrete.

Physicians in private practice, and particularly clinicians, should press for representation on the advisory committees of the Food and Drug Administration, joining with academic and teaching hospital physicians and scientists who are already serving. Though practitioners may not have access to all available information, the value of their clinical experience should be recognized. Clinicians, for example, rightly remind us that difficulty in *proving* precise effects does not necessarily mean a drug is ineffective.

Unless practitioners are more involved in drug regulations, it will be increasingly difficult for the pharmaceutical industry and scientists elsewhere to make optimal progress in drug development. The benefit/risk ratio must be re-emphasized, and as part of this it must be acknowledged that benefit can come from the judgments of medical science as a whole. Even this concept, unfortunately, is not always accepted in drug regulatory processes. For example, if current medical opinion holds that an excess of total lipids and cholesterol in the blood is probably predisposing to atherosclerosis, and if a drug is discovered which reduces total lipids and cholesterol, the drug ought to be accepted *prima facie* as a contribution to medical science . . . until someone disproves the theory. The sponsor should not have to prove the theory as well as to develop and test the drug.

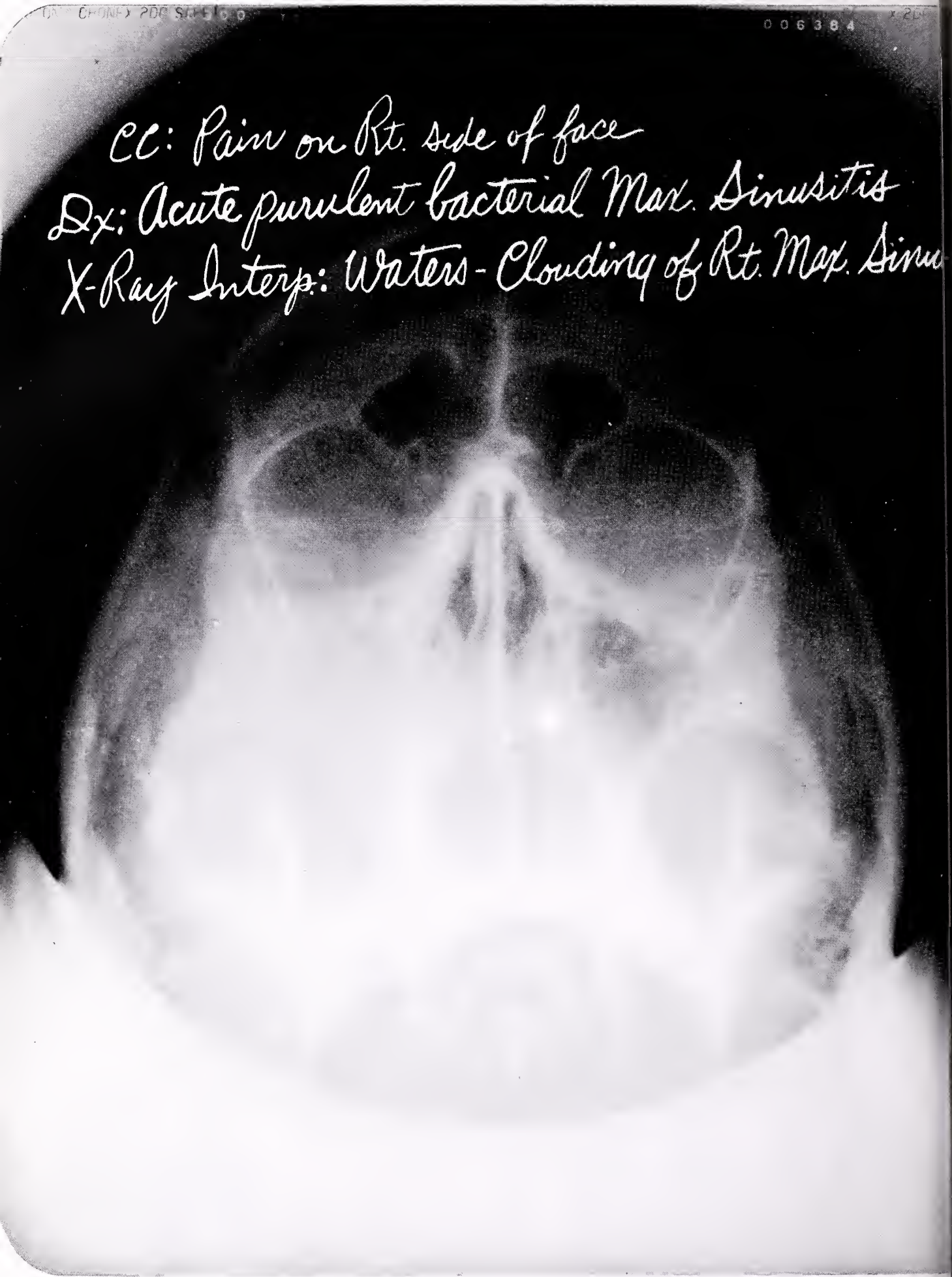
I feel a major new effort must also be made to erase the feeling of mistrust of medicine and of medicines that seems to be growing in the public consciousness. Triggered primarily by strident announcements in Washington, people are reading and hearing confidence-shaking things almost continuously. Although challenge and awareness are essential to medical advancement, our long-term goal is constructively to build, not destroy. This means strengthening patient-physician relationships based on mutual confidence and trust. And in matters of health policy, it means working toward participatory rather than adversary proceedings—where everyone with an interest and a capacity to contribute has an opportunity to be heard . . . and, if that opportunity is not spontaneously afforded him, he may seek it.

Opinion & Dialogue

What is your opinion, doctor?
We would welcome your comments.

P·M·A

The Pharmaceutical Manufacturers Association
1155 Fifteenth Street, N.W., Washington, D.C. 20005



X-ray provided by Manhattan Eye, Ear and Throat Hospital

There are many frustrations in treating acute sinusitis. Cleocin manages most of the bacterial ones.

Inadequate drainage, chronic rhinitis, allergy, exposure to temperature extremes, and other factors can delay recovery from acute sinusitis.

It's helpful to have an antibiotic like Cleocin HCl (clindamycin HCl hydrate, Upjohn) that can take care of most of the gram-positive bacterial problems related to the disease.

As one study* of 52 outpatients showed, acute maxillary sinusitis was associated with staphylococci in 50% of the group, with pneumococci in 25%, and with streptococci and various other organisms (chiefly gram-negative) in the remainder. Significantly, one-half of these staphylococcal infections were resistant to both penicillin and tetracycline (all were sensitive to erythromycin and chloramphenicol). Although not a part of this study, many other clinical and bacteriologic reports[1] have shown that such gram-positive bacteria, which most often are associated with acute sinusitis, are usually susceptible to Cleocin.

Can be taken before, with, or after meals

The total absorption of Cleocin is virtually unaffected by the presence of food in the GI tract.[1] Cleocin thus can be administered as prescribed without interfering with the patient's mealtimes.

Useful in patients hypersensitive to penicillin

Cleocin's chemical structure bears no relationship to penicillin or the cephalosporins. Cleocin therefore may be especially useful in patients with acute sinusitis who report a history of hypersensitivity to these antibiotics. Although hypersensitivity reactions have been uncommon with Cleocin, it should be used cautiously in atopic individuals. Cleocin is not recommended in the lincomycin-sensitive patient.

Please see following page for further prescribing information.

Cleocin® HCl 150 mg capsules

clindamycin HCl hydrate, Upjohn

Reynolds, R. C., et al.: Bull. Johns Hopkins Hosp. 114:269, 1964
Data on file, Medical Research Department, The Upjohn Company

©1971 The Upjohn Company

Side effects: In studies of 1,416 patients involving 92 clinical investigators, side effects were reported in 8.2%.[1] Diarrhea or loose stools were noted in 3% of these cases (one patient with bloody stools). In a few instances, diarrhea lasted several days. A slightly higher incidence of diarrhea or loose stools has been reported by some investigators in subsequent studies.

Toxicity: No irreversible hematologic, renal, dermatologic, or neurologic abnormalities have been reported.[1] Transient leukopenia and eosinophilia have been observed. Elevations of alkaline phosphatase and serum transaminases were observed in a few instances. As with other antibiotics, periodic liver function tests and blood counts should be performed during prolonged therapy.

In acute sinusitis and other upper respiratory infections due to susceptible staphylococci, streptococci, and pneumococci

Cleocin® HCl

clindamycin HCl hydrate, Upjohn

Each preparation contains:	Clindamycin HCl hydrate equivalent to clindamycin base
150 mg Capsules	150 mg
75 mg Capsules	75 mg

Cleocin (clindamycin, Upjohn) is a new semisynthetic antibiotic produced from the parent compound lincomycin and provides more *in vitro* potency, better oral absorption and fewer gastrointestinal side effects than the parent compound.

Cleocin HCl (clindamycin HCl hydrate) is indicated in infections of the upper and lower respirotory tract, skin and soft tissue, and, adjunctively, dental infections caused by gram-positive organisms which are susceptible to its action, particularly streptococci, pneumococci and staphylococci. As with all antibiotics, *in vitro* susceptibility studies should be performed.

CONTRAINDICATIONS: Patients previously found to be hypersensitive to this compound or to lincomycin.

WARNINGS: Safety for use in pregnancy not estoblished. Not indicated in the newborn (infants below 30 days of age).

PRECAUTIONS: Prescribe with caution in atopic individuols. Perfarm periodic liver function tests and blood counts during prolonged therapy. The serum half-life in patients with markedly reduced renal functian is approximately twice that in normal patients; hemodialysis and peritoneal dialysis do not effectively remove Cleocin from the blood. Therefore, with severe renal insufficiency, determine serum levels of clindamycin periodically and decrease the dose appropriately. Should overgrowth of nonsusceptible organisms—particularly yeasts—occur, take appropriate clinically indicated measures.

ADVERSE REACTIONS: Generally well tolerated in clinical efficacy studies. Side effects reported in 8.2% of 1,416 patients. Of the total, 6.9% reported gastrointestinal side effects and 1.3% reported other side effects. Diarrhea or loose stools were reported in 3%. *Gastrointestinal:* Symptoms included obdominal pain, nausea, vomiting and diarrhea or loose stools. In a few instances, diarrhea lasted for several days; one cose of bloody stools was reported. *Hematopoietic:* Tronsient neutropenia (leukopenia) and eosinophilia have been reported; relationship to therapy is unknown. No irreversible hematologic toxicity has been reported. *Skin and Mucous Membranes:* Skin rash and urticaria have been reported infrequently. *Hypersensitivity Reactions:* A few cases of hypersensitivity reaction have been reported. If hypersensitivity occurs, discontinue drug and have available the usual agents (epinephrine, corticosteroids, antihistamines) for emergency treatment. *Liver:* Although no direct relatianship of Cleocin HCl (clindamycin HCl hydrate) ta liver dysfunction hos been nated and significance of such change is unknown, transient abnormalities in liver function tests (elevations af alkaline phosphatase and serum transaminases) have been observed in a few instances. Also, abnormal liver functian test values at the beginning of therapy have returned to normal during therapy.

DOSAGE AND ADMINISTRATION: *Adults:* Mild ta moderately severe infections—150 to 300 mg every 6 hours. Severe infections—300 to 450 mg every 6 hours.

Children: Mild to moderately severe infections—8 to 16 mg/kg/day (4 to 8 mg/lb/day) divided into three or four equal doses. Severe infectians—16 to 20 mg/kg/day (8 to 10 mg/lb/day) divided into three or four equal doses.

Note: With β-hemolytic streptococcal infections, treatment should continue for at least 10 days to diminish the likelihood of subsequent rheumatic fever ar glomerulonephritis.

SUPPLIED: 150 mg Capsules—Bottles of 16's and 100's. 75 mg Capsules—Battles of 16's and 100's. Sensitivity Disks—2 μg. Sensitivity Powder—Vials.

For additional product information, see your Upjohn representative or consult package insert. MED B-4-S (LNU-3) JA71-1565

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A gratifying announcement about Empirin® Compound with Codeine

You may now specify up to five refills within six months when you prescribe Empirin Compound with Codeine (unless restricted by state law).

It is significant in this era of increased regulation, that Empirin Compound with Codeine has been placed in a less restrictive category. You may now wish to consider Empirin with Codeine even more frequently for its predictable analgesia in acute or protracted pain of moderate to severe intensity.

Empirin Compound with Codeine No. 3 contains codeine phosphate* (32.4 mg.) gr. ½. No. 4 contains codeine phosphate* (64.8 mg.) gr. 1. *(Warning—may be habit-forming.) Each tablet also contains: aspirin gr. 3½, phenacetin gr. 2½, caffeine gr. ½.

THE BOOK CORNER

New books received are acknowledged in this section and such acknowledgment must be regarded as sufficient return for the courtesy of the sender. Selection will be made for review in the interests of our readers and as space permits. Books are listed with advance data supplied by publishers. Prices quoted are not guaranteed. For further information, address queries to the publishers. Books here listed are available for lending from the Denver Medical Society Library.

Recent Acquisitions

Culture and Commitment — A Study of the Generation Gap: By Margaret Mead. Garden City, N.Y., 1970, Doubleday. 113 p. Price: Gift.

Current Therapy: Edited by Howard F. Conn. Philadelphia, 1972, Saunders. 892 p. Price: $16.00.

In the Name of Mental Health: By Ronald Leifer. New York, 1969, Science House. 282 p. Price: Gift.

Introduction to Psychotherapy: By Sidney Tarachow. New York, 1963, International Univ. Press. 376 p. Price: Gift.

Lactogenic Hormones: By Ciba Foundation. London, 1972, Churchill Livingstone. 416 p. Price: Gift.

Neurophypophysial Hormones: By Ciba Foundation. London, 1971, Churchill Livingstone. 146 p. Price: Gift.

Neuropsychopharmacology, v. 3: Edited by P. B. Bradley and others. New York, 1964, Elsevier Publ. 607 p. Price: Gift.

Peripheral Vascular Diseases: By J. F. Fairbairn and others. 4th ed. Phila., 1972, Saunders. 797 p. Price: Not Set.

Personality and Science: By Ciba Foundation. London, 1971, Churchill Livingstone. 158 p. Price: Gift.

Physiologic Foundations for Marriage Counseling: By Joseph B. Trainer. St. Louis, 1965, Mosby. 287 p. Price: Gift.

Primer of Electrocardiography: By George E. Burch and Travis Winsor, 6th ed. Philadelphia, 1972, Lea & Febiger. 292 p. Price: Not Set.

Progress in Allergy, v. 15: Edited by Paul Kallos and others. New York, 1971, S. Karger. 485 p. Price: $26.00.

Science and Psychoanalysis, v. 19: Edited by Jules H. Masserman. New York, 1971, Grune & Stratton. 194 p. Price: Not Set.

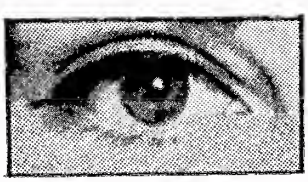
Sex and Selfhood: By William G. Cole. Philadelphia, 1968, Geneva Press. 126 p. Price: Gift.

Tension in Medicine: Edited by Edmund Jacobson and others. Springfield, Ill., 1967, Thomas. 148 p. Price: Gift.

Testicular Tumors: By Douglas Johnson. New York, 1971, Medical Exam Publ., 290 p. Price: $20.00.

Textbook of X-Ray Diagnosis—Bones, Joints and Soft Tissues, v. 6: by S. C. Shanks and others. 4th ed. Philadelphia, 1971, Saunders. 859 p. Price: Not Set.

ARTIFICIAL EYES



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Gantrisin® (sulfisoxazole) Roche® provides your patients with many important advantages:

- high urinary levels
- generally good tolerance
- high solubility at average urinary pH
- rapid absorption
- rapid renal clearance
- high plasma concentrations
- economy (average cost of therapy: less than 6½¢ per tablet)

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Acute, recurrent or chronic urinary tract infections (primarily cystitis, pyelitis, pyelonephritis) due to susceptible organisms (usually *E. coli, Klebsiella Aerobacter, Staphylococcus aureus, Proteus mirabilis,* and less frequently, *Proteus vulgaris*) in the absence of obstructive uropathy or foreign bodies.

IMPORTANT NOTE: *In vitro* sulfonamide sensitivity tests are not always reliable. The test must be carefully coordinated with bacteriologic and clinical response. When the patient is already taking sulfonamides, follow-up cultures should have aminobenzoic acid added to the culture media.

Currently, the increasing frequency of resistant organisms is a limitation of the usefulness of antibacterial agents including the sulfonamides, especially in the treatment of chronic and recurrent urinary tract infections.

Free sulfonamide blood levels should be measured in patients receiving sulfonamides for serious infections since there may be wide variations with identical doses; 20 mg/100 ml should be maximum total sulfonamide level, as adverse reactions occur more frequently above this level.

Contraindications: Hypersensitivity to sulfonamides, infants less than 2 months of age (except adjunctively with pyrimethamine in congenital toxoplasmosis), pregnancy at term, and during the nursing period.

Warnings: Safety of sulfonamides in *pregnancy* has not been established. Sulfonamides will not eradicate group A streptococci. Deaths associated with sulfonamide administration have been reported from hypersensitivity reactions, agranulocytosis, aplastic anemia and other blood dyscrasias. Clinical signs such as sore throat, fever, pallor, purpura or jaundice may be early indications of serious blood disorders. Complete blood counts and urinalyses with careful microscopic examination should be performed frequently during sulfonamide therapy.

Precautions: Use with caution when impaired renal or hepatic function, severe allergy or bronchial asthma is present. In glucose-6-phosphate dehydrogenase-deficient individuals, hemolysis (frequently a dose-related reaction) may occur. Maintain adequate fluid intake to prevent crystalluria and stone formation.

Adverse Reactions: *Blood dyscrasias:* Agranulocytosis, aplastic anemia, thrombocytopenia, leukopenia, hemolytic anemia, purpura, hypoprothrombinemia, methemoglobinemia. *Allergic reactions:* Erythema multiforme (Stevens-Johnson syndrome), generalized skin eruptions, epidermal necrolysis, urticaria, serum sickness, pruritus, exfoliative dermatitis, anaphylactoid reactions, periorbital edema, conjunctival and scleral injection, photosensitization, arthralgia, allergic myocarditis. *Gastrointestinal reactions:* Nausea, emesis, abdominal pains, hepatitis, diarrhea, anorexia, pancreatitis, stomatitis. *C.N.S. reactions:* Headache, peripheral neuritis, mental depression, convulsions, ataxia, hallucinations, tinnitus, vertigo, insomnia. *Miscellaneous reactions:* Drug fever, chills, toxic nephrosis with oliguria and anuria, periarteritis nodosa and L.E. phenomenon have occurred with sulfonamide therapy. Sulfonamides bear certain chemical similarities to some goitrogens, diuretics and oral hypoglycemic agents. Goiter production, diuresis and hypoglycemia have occurred rarely in patients receiving sulfonamides. Cross-sensitivity may exist with these agents.

Supplied: Tablets containing 0.5 Gm sulfisoxazole.

ROCHE LABORATORIES
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

THREE OTHER BUILT-IN BENEFITS OF GANTRISIN®

sulfisoxazole/Roche®

3.

High solubility at average urinary pH

Gantrisin's unusual solubility is the main reason for its relatively low toxicity. In both free and acetylated forms, it is highly soluble at urinary pH values of 5.5 to 6.5, so there is no need for prophylactic alkali therapy.

4.

Rapid absorption

Gantrisin reaches its sites of action quickly. Measurable levels of the drug have been found in blood and urine within 60 minutes; in 2 to 3 hours, therapeutic levels usually have been reached.

5.

Rapid renal clearance

Gantrisin's rapid excretion rate is another reason why it is generally well tolerated. Over 50% of a single oral dose is excreted in 8 hours, over 90% in 24 to 48 hours, so there is little risk of hematuria or crystalluria, and anuria is rare. As with all sulfonamides, adequate fluid intake must be maintained. Complete blood counts and urinalyses, with careful microscopic examination, should be performed frequently.

For nonobstructed cystitis due to *E. coli* and other susceptible organisms

begin with

Gantrisin®

sulfisoxazole/Roche®

Usual adult dosage:
4 to 8 tablets *stat*
2 to 4 tablets *q.i.d.*

When irritable colon feels like this

...in the presence of spasm or hypermotility, gas distension and discomfort, **KINESED®** provides more complete relief:

- ☐ **belladonna alkaloids—for the hyperactive bowel**
- ☐ **simethicone—for accompanying distension and pain due to gas**
- ☐ **phenobarbital—for associated anxiety and tension**

Composition: Each chewable, fruit-flavored, scored tablet contains: 16 mg. phenobarbital (warning: may be habit-forming); 0.1 mg. hyoscyamine sulfate; 0.02 mg. atropine sulfate; 0.007 mg. scopolamine hydrobromide; 40 mg. simethicone.
Contraindications: Hypersensitivity to barbiturates or belladonna alkaloids, glaucoma, advanced renal or hepatic disease.
Precautions: Administer with caution to patients with incipient glaucoma, bladder neck obstruction or urinary bladder atony. Prolonged use of barbiturates may be habit-forming.
Side effects: Blurred vision, dry mouth, dysuria, and other atropine-like side effects may occur at high doses, but are only rarely noted at recommended dosages.
Dosage: Adults: One or two tablets three or four times daily. Dosage can be adjusted depending on diagnosis and severity of symptoms. Children 2 to 12 years: One half or one tablet three or four times daily. Tablets may be chewed or swallowed with liquids.

STUART PHARMACEUTICALS | Pasadena, California 91109 | Division of ATLAS CHEMICAL INDUSTRIES, INC.

(from the Greek **kinetikos**,
to move,
and the Latin **sedatus**,
to calm)

KINESED®

antispasmodic/sedative/antiflatulent

Spring peeper (tree frog, *Hyla crucifer*):
this small amphibian can expand
its throat membrane with air until it is
twice the size of its head.

IN ASTHMA
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optional therapy

THE mudranes®

All Mudranes are bronchodilator-mucolytic in action, and are indicated for symptomatic relief of bronchial asthma, emphysema, bronchiectasis and chronic bronchitis. **MUDRANE tablets** contain 195 mg. potassium iodide; 130 mg. aminophylline; 21 mg. phenobarbital (Warning: may be habit-forming); 16 mg. ephedrine HCl. **Dosage** is one tablet with full glass of water, 3 or 4 times a day. **Precautions** are those for aminophylline-phenobarbital-ephedrine combinations. **Iodide side-effects:** May cause nausea. Very long use may cause goiter. Discontinue if symptoms of iodism develop. **Iodide contraindications:** Tuberculosis; pregnancy (to protect the fetus against possible depression of thyroid activity). **MUDRANE-2 tablets** contain 195 mg. potassium iodide; 130 mg. aminophylline. **Dosage** is one tablet with full glass of water, 3 or 4 times a day. **Precautions** are those for aminophylline. **Iodide side-effects and contraindications are listed above. MUDRANE GG tablets** contain 100 mg. glyceryl guaiacolate; 130 mg. aminophylline; 21 mg. phenobarbital (Warning: may be habit-forming); 16 mg. ephedrine HCl. **Dosage** is one tablet with full glass of water, 3 or 4 times a day. **Precautions** are those for aminophylline-phenobarbital-ephedrine combinations. **MUDRANE GG-2 tablets** contain 100 mg. glyceryl guaiacolate; 130 mg. aminophylline. **Dosage** is one tablet with full glass of water, 3 or 4 times a day. **Precautions:** Those for aminophylline. **MUDRANE GG Elixir.** Each teaspoonful (5 cc) contains 26 mg. glyceryl guaiacolate; 20 mg. theophylline; 5.4 mg. phenobarbital (Warning: may be habit-forming); 4 mg. ephedrine HCl. **Dosage:** Children, 1 cc for each 10 lbs. of body weight; one teaspoonful (5 cc) for a 50 lb. child. Dose may be repeated 3 or 4 times a day. Adult, one tablespoonful, 4 times daily. All doses should be followed with ½ to full glass of water. **Precautions:** See those listed above for Mudrane GG tablets.

MUDRANE—original formula
First choice

MUDRANE-2
When ephedrine is too exciting or is contraindicated

MUDRANE GG
During pregnancy or when K.I. is contraindicated or not tolerated

MUDRANE GG-2
A counterpart for Mudrane-2

MUDRANE GG ELIXIR
For pediatric use or where liquids are preferred

Clinical specimens available to physicians.

WILLIAM P. POYTHRESS & COMPANY, INC., RICHMOND, VIRGINIA 23217

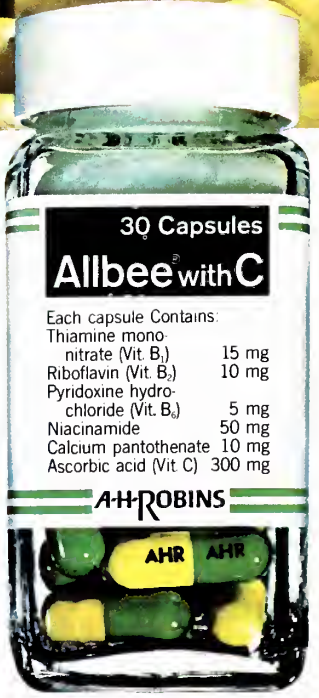
Manufacturers of Ethical Pharmaceuticals

2 ways to provide a month's therapeutic supply of Vitamin C: 180 lemons or 30 Allbee® with C

As a source of ascorbic acid, the lemon really hits a high C (50 mg.). But your patient would still have to eat 180 lemons every month—6 a day—to get a therapeutic dose. And as the calypso singer puts it, "one hundred eighty lemons is impossible to eat." Fortunately, a bottle of 30 Allbee with C capsules (taken one capsule daily) supplies as much Vitamin C as all those lemons, plus full therapeutic amounts of the B-complex vitamins. For example, as much B_6 as two pounds of corn. Allbee with C is no lemon! This handy bottle of 30 capsules gives your patient a month's supply at a very reasonable cost. Also the economy size of 100. Available at pharmacies on your prescription or recommendation.

A. H. Robins Company, Richmond, Va. 23220

A·H·ROBINS



vacation in a vial: the spasm reactors in your practice deserve

"the Donnatal® Effect"

	each tablet, capsule or 5 cc. teaspoonful of elixir (23% alcohol)	each Donnatal No. 2	each Extentab®
hyoscyamine sulfate	0.1037 mg.	0.1037 mg.	0.3111 mg.
atropine sulfate	0.0194 mg.	0.0194 mg.	0.0582 mg.
hyoscine hydrobromide	0.0065 mg.	0.0065 mg.	0.0195 mg.
phenobarbital (warning: may be habit forming)	(¼ gr.) 16.2 mg.	(½ gr.) 32.4 mg.	(¾ gr.) 48.6 mg.

Brief summary. Side effects: Blurring of vision, dry mouth, difficult urination, and flushing or dryness of the skin may occur on higher dosage levels, rarely on usual dosage. Administer with caution to patients with incipient glaucoma or urinary bladder neck obstruction as in prostatic hypertrophy. Contraindicated in patients with acute glaucoma, advanced renal or hepatic disease or hypersensitivity to any of the ingredients.

A. H. ROBINS COMPANY, RICHMOND, VIRGINIA 23220

A·H·ROBINS

¿Habla español?

If not, the new Rocom Health History Questionnaire asks questions in Spanish...

1.	¿Le molestan coyunturas o músculos rígidos o dolorosos?	Sí ✕	No
2.	¿Se le hinchan las coyunturas?	Sí	No ✕
3.	¿Le molestan dolores en la espalda u hombros?	Sí ✕	No
4.	¿Le duelen los pies con frecuencia?	Sí	No ✕
5.	¿Está desabilitado en alguna manera?	Sí	No ✕
6.	¿Tiene algún problema con su piel?	Sí	No ✕
7.	¿Le pica o quema la piel?	Sí	No ✕
8.	¿Sangra por largo tiempo cuando se hace una pequeña cortadura?	Sí	No ✕
9.	¿Se lastima facilmente formando un cardenal o moretc?	Sí	No ✕
10.	¿Se ha desmayado o se ha sentido como que se va a desmayar?	Sí	No ✕
11.	¿Tiene alguna parte del cuerpo siempre adormecida?	Sí ✕	No
12.	¿Ha tenido alguna vez convulciones?	Sí	No ✕
13.	¿Le ha cambiado ultimamente su letra al escribir?	Sí	No ✕
14.	¿Tiene tendencia a temblar o mencarse mucho?	Sí	No ✕
15.	¿Se pone nervioso en presencia de personas extrañas?	Sí ✕	No
16.	¿Se le hace difícil tomar decisiones?	Sí ✕	No
17.	¿Se le hace difícil concentrar o recordar?	Sí ✕	No
18.	¿Se siente solo o deprimido?	Sí	No ✕
19.	¿Llora a menudo?	Sí	No ✕
20.	¿Diría usted que tiene una perspectiva irremediable?	Sí	No ✕
21.	¿Tiene dificultad en relajar o reposar?	Sí ✕	No
22.	¿Tiende a preocuparse demasiado?	Sí ✕	No
23.	¿Le molestan o asustan algunos sueños o pensamientos?	Sí	No ✕
24.	¿Tiende a ser tímido o sensitivo?	Sí	No ✕
25.	¿Se molesta mucho cuando lo critican?	Sí ✕	No
26.	¿Pierde el genio con frecuencia?	Sí ✕	No
27.	¿Cosas pequeñas lo hacen molestar?	Sí ✕	No
28.	¿Le molesta cualquier trabajo o problemas familiares?	Sí	No ✕
29.	¿Tiene algún problema con su vida sexual?	Sí	No ✕
30.	¿Ha considerado alguna vez suicidarse?	Sí	No ✕
31.	¿Ha deseado alguna vez, o buscado, ayuda psiquíatrica?	Sí ✕	No

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provides answers in English

13. MUSCULOSKELETAL
- ✕ aching muscles or joints
- ___ swollen joints
- ✕ back or shoulder pains
- ___ painful feet
- ___ handicapped

14. SKIN
- ___ skin problems
- ___ itching or burning skin
- ___ bleeds easily
- ___ bruises easily

15. NEUROLOGICAL
- ✕ faintness
- ✕ numbness
- ___ convulsions
- ___ change in handwriting
- ___ trembles

16. MOOD
- ✕ nervous with strangers
- ✕ difficulty making decisions
- ✕ lack of concentration or memory
- ___ lonely or depressed
- ___ cries often
- ___ hopeless outlook
- ✕ difficulty relaxing
- ✕ worries a lot
- ___ frightening dreams or thoughts
- ___ shy or sensitive
- ✕ dislikes criticism
- ✕ loses temper
- ✕ annoyed by little things
- ___ work or family problems
- ___ sexual difficulties
- ✕ considered suicide
- ✕ desired psychiatric help

When your patient speaks little English and your Spanish is limited or nonexistent, you need the new ROCOM Health History Questionnaire (Spanish).*

The uniqueness of this new ROCOM system lies in the fact that the questions are asked in *Spanish,* but you read the answers in *English.* The form itself does the "translating."

You have to see it yourself to appreciate the ease and completeness of this new history-taking technique, which includes 129 questions covering all body systems.

*Created and developed by Patient Care Systems, Inc.

ROCHE ROCOM™ Division of Hoffmann-La Roche Inc.
Box 169, Fairview, New Jersey 07022

For information about the new Rocom Health History Questionnaire (Spanish) and other components in the Rocom Medical Management System, please fill out the coupon and send it to us.

Name _____

Specialty _____

Address _____

City _____ State _____ Zip _____

T MMS - 1H

To get the water out in edema*

To lower blood pressure in hypertension*

To spare potassium in both

There's

Don't miss
TODAY IN MEDICINE™
medical radio from SK&F

Denver KVOD-FM
Mon 10:05 pm & Tue 6:45 am

Dyazide®

Trademark

Each capsule contains 50 mg. of Dyrenium® (brand of triamterene) and 25 mg. of hydrochlorothiazide.

Before prescribing, see complete prescribing information in SK&F literature or *PDR*.

***Indications:** Edema associated with congestive heart failure, cirrhosis of the liver, the nephrotic syndrome, late pregnancy; also steroid-induced and idiopathic edema, and edema resistant to other diuretic therapy. 'Dyazide' is also indicated in the treatment of mild to moderate hypertension.

Contraindications: Pre-existing elevated serum potassium. Hypersensitivity to either component. Continued use in progressive renal or hepatic dysfunction or developing hyperkalemia.

Warnings: Do not use dietary potassium supplements or potassium salts unless hypokalemia develops or dietary potassium intake is markedly impaired. Enteric-coated potassium salts may cause small bowel stenosis with or without ulceration. Hyperkalemia (>5.4 mEq/L) has been reported in 4% of patients under 60 years, in 12% of patients over 60 years, and in less than 8% of patients overall. Rarely, cases have been associated with cardiac irregularities. Accordingly, **check serum potassium during therapy, particularly in patients with suspected or confirmed renal insufficiency (e.g., certain elderly or diabetics). If hyperkalemia develops, substitute a thiazide alone. If spironolactone is used concomitantly with 'Dyazide', check serum potassium frequently**—they can both cause potassium retention and sometimes hyperkalemia. Two deaths have been reported in patients on such combined therapy (in one, recommended dosage was exceeded; in the other, serum electrolytes were not properly monitored). Observe regularly for possible blood dyscrasias, liver damage or other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving Dyrenium (triamterene, SK&F). Rarely, leukopenia, thrombocytopenia, agranulocytosis, and aplastic anemia have been reported with the thiazides. Watch for signs of impending coma in acutely ill cirrhotics. Thiazides are reported to cross the placental barrier and appear in breast milk. This may result in fetal or neonatal hyperbilirubinemia, thrombocytopenia, altered carbohydrate metabolism and possibly other adverse reactions that have occurred in the adult. When used during pregnancy or in women who might bear children, weigh potential benefits against possible hazards to fetus.

Precautions: Do periodic serum electrolyte and BUN determinations. Do periodic hematologic studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in postsympathectomy patients. The following may occur: hyperuricemia and gout, reversible nitrogen retention, decreasing alkali reserve with possible metabolic acidosis, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), digitalis intoxication (in hypokalemia). Use cautiously in surgical patients. Concomitant use with antihypertensive agents may result in an additive hypotensive effect.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis; rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting (may indicate electrolyte imbalance), diarrhea, constipation, other gastrointestinal disturbances. Rarely, necrotizing vasculitis, paresthesias, icterus, pancreatitis, and xanthopsia have occurred with thiazides alone.

Supplied: Bottles of 100 capsules.

SK&F CO.
Carolina, P.R. 00630
a subsidiary of Smith Kline & French Laboratories

140/90 is normal blood pressure...or is it?

An extensive study based on nearly 4 million life insurance policies suggests that a blood pressure reading of 140/90 requires close medical supervision.

Study Findings. Twelve years ago the Society of Actuaries reported on an extensive study based on the lives and deaths represented by almost 4 million life insurance policies. From this vast survey—"The Build and Blood Pressure Study"[1]—insurance experts concluded that:

- Blood pressure above 140/90 is accompanied by increased morbidity and requires close medical attention.
- Even small increments in either systolic or diastolic blood pressure progressively and steeply shorten life expectancy.

Other Studies. Studies conducted with large numbers of patients since that time have echoed the above findings. Two studies published in 1970—the VA Cooperative Study Group on "Effects of Treatment on Morbidity in Hypertension"[2] and the "Framingham Study"[3]—suggest that treatment of even mild hypertension may, over time, offer significant benefits to the patient.

Another Point of View. Although a growing body of studies suggests that treatment of mild hypertension is warranted, medical opinion is not unanimous. Some clinicians recommend that drug treatment for mild hypertension be reserved for patients with additional risk factors such as smoking, high cholesterol levels, heart or kidney involvement, or a family history of vascular disease. Dr. Walter M. Kirkendall stated this position in his recent paper "What's With Hypertension These Days?"[4] Discussing the management of hypertension in patients with a sustained diastolic pressure up to 100 mm Hg, he said: "Generally, I do not recommend antihypertensive therapy unless patient's blood pressure approaches the upper limit for the group and a number of adverse factors exist, such as male sex, family history of vascular disease, youth, evidence of heart or kidney involvement."

Drug Therapy for Hypertension. Although opinion varies on when to start drug therapy for mild hypertension, many physicians agree that treatment should start with a thiazide diuretic such as HydroDIURIL. For the adult patient, the usual starting dosage is 50 mg b.i.d. Dosage adjustments are recommended as the patient responds to treatment. The patient whose therapy begins with HydroDIURIL frequently can continue to benefit from it, because HydroDIURIL usually maintains its antihypertensive effect even when therapy is prolonged.

MSD
MERCK SHARP & DOHME

25- and 50-mg tablets

HydroDIURIL®

(Hydrochlorothiazide|MSD)

Therapy to Start With

For a brief summary of prescribing information, please see next page.

1. Society of Actuaries, *The Build and Blood Pressure Study*, 1959.
2. Veterans Administration Cooperative Study Group on Antihypertensive Agents, "Effects of Treatment on Morbidity in Hypertension," JAMA *213*:1143-1152, Aug. 17, 1970.
3. Kannel, William B., *et al.*: "Epidemiologic Assessment of the Role of Blood Pressure in Stroke—The Framingham Study," JAMA *214*:301-310, Oct. 12, 1970.
4. Kirkendall, Walter M.: "What's With Hypertension These Days?" Consultant, Jan. 1971.

HydroDIURIL®

(Hydrochlorothiazide|MSD)

Therapy to Start With

Drug Therapy for Hypertension. Although opinion varies on when to start drug therapy for mild hypertension, many physicians agree that treatment should start with a thiazide diuretic such as HydroDIURIL. For the adult patient, the usual starting dosage is 50 mg b.i.d. Dosage adjustments are recommended as the patient responds to treatment. The patient whose therapy begins with HydroDIURIL frequently can continue to benefit from it, because HydroDIURIL usually maintains its antihypertensive effect even when therapy is prolonged.

CONTRAINDICATIONS: Anuria; increasing azotemia and oliguria during treatment of severe progressive renal disease. Known sensitivity to this compound. Nursing mothers; if use of drug is deemed essential, patient should stop nursing.

WARNINGS: May precipitate or increase azotemia. Use special caution in impaired renal function to avoid cumulative or toxic effects. Minor alterations of fluid and electrolyte balance may precipitate coma in hepatic cirrhosis.

When used with other antihypertensive drugs, careful observation for changes in blood pressure must be made, especially during initial therapy. Dosage of other antihypertensive agents, especially ganglion blockers, must be reduced by at least 50% because HydroDIURIL potentiates their action.

Stenosis and ulceration of the small bowel causing obstruction, hemorrhage, and perforation have been reported with the use of enteric-coated potassium tablets, either alone or with nonenteric-coated thiazides. Surgery was frequently required, and deaths have occurred. Such formulations should be used only when indicated and when dietary supplementation is impractical. Discontinue immediately if abdominal pain, distention, nausea, vomiting, or gastrointestinal bleeding occurs.

Thiazides cross placenta and appear in cord blood. In women of childbearing age, potential benefits must be weighed against possible hazards to fetus, such as fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult.

The possibility of sensitivity reactions should be considered in patients with a history of allergy or bronchial asthma. The possibility of exacerbation or activation of systemic lupus erythematosus has been reported for sulfonamide derivatives, including thiazides.

PRECAUTIONS: Check for signs of fluid and electrolyte imbalance, particularly if vomiting is excessive or patient is receiving parenteral fluids. Warning signs, irrespective of cause, are dryness of mouth, thirst, weakness, lethargy, drowsiness, restlessness, muscle pains or cramps, muscular fatigue, hypotension, oliguria, tachycardia, and gastrointestinal disturbances. Hypokalemia may develop (especially with brisk diuresis) in severe cirrhosis; with concomitant steroid or ACTH therapy; or with inadequate electrolyte intake. Digitalis therapy may exaggerate metabolic effects of hypokalemia, especially with reference to myocardial activity. Hypokalemia may be avoided or treated by use of potassium chloride or giving foods with a high potassium content. Similarly, any chloride deficit may be corrected by use of ammonium chloride (except in patients with hepatic disease) and largely prevented by a near normal salt intake. Hypochloremic alkalosis occurs infrequently and is rarely severe. In severely edematous patients with congestive failure or renal disease, a low salt syndrome may occur if dietary salt is unduly restricted, especially during hot weather.

Thiazides may increase responsiveness to tubocurarine. The antihypertensive effect of the drug may be enhanced in the postsympathectomy patient. Arterial responsiveness to norepinephrine is decreased, necessitating care in surgical patients. Discontinue drug 48 hours before elective surgery. Orthostatic hypotension may occur and may be potentiated by alcohol, barbiturates, or narcotics.

Pathological changes in the parathyroid glands with hypercalcemia and hypophosphatemia have been seen in a few patients on prolonged thiazide therapy. The effect of discontinuing thiazide therapy on serum calcium and phosphorus levels may be helpful in assessing the need for parathyroid surgery in such patients. Parathyroidectomy has elicited subjective clinical improvement in most patients, but has no effect on hypertension. Thiazide therapy may be resumed after surgery.

Use cautiously in hyperuricemic or gouty patients; gout may be precipitated. May affect insulin requirements in diabetics; may induce hyperglycemia and glycosuria in latent diabetics.

ADVERSE REACTIONS: Rare reactions include thrombocytopenia, leukopenia, agranulocytosis, aplastic anemia, cholestasis, and pericholangiolitic hepatitis. Nausea, vomiting, diarrhea, dizziness, vertigo, paresthesias, transient blurred vision, sialadenitis, purpura, rash, urticaria, photosensitivity, or other hypersensitivity reactions may occur. Cutaneous vasculitis precipitated by thiazide diuretics has been reported in elderly patients on repeated and continuing exposure to several drugs. Scattered reports have linked thiazides to pancreatitis, xanthopsia, neonatal thrombocytopenia, and neonatal jaundice. When adverse reactions are moderate or severe, the dosage of thiazides should be reduced or therapy withdrawn.

For more detailed information, consult your MSD Representative or see the Direction Circular. Merck Sharp & Dohme, Division of Merck & Co., Inc., West Point, Pa. 19486

MSD
MERCK SHARP & DOHME

MEETINGS

Southeastern Chapter of the Colorado Academy of General Practice
NINTH ANNUAL SYMPOSIUM
Minnequa University Club, Pueblo, Colorado
April 30, 1972

The topic will be "Psychosomatic Aspects of Emotional and Somatic Problems in Surgery, Medicine, and Pediatrics", with discussions on anxiety and depression as well as sleep and drugs used in psychiatry.

For further information, write: Samuel Nelson, MD, 129 Colorado Avenue, Pueblo, Colorado 81004.

CLINICAL EVALUATION OF THYROID DISEASE
Broadmoor Hotel, Colorado Springs, Colorado
June 3, 1972

AAGP credits to be assigned.

A workshop for the practitioner to emphasize the combined endocrinology-nuclear medicine approach to benign and malignant thyroid disease.

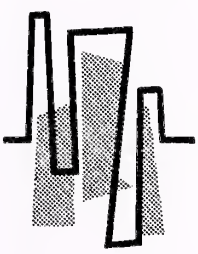
For details, contact: Frederick R. Gydesen, MD, Director of Nuclear Medicine, Penrose Hospital, 2215 North Cascade Avenue, Colorado Springs, Colorado 80907.

American Gastroenterological Association
FOURTH ANNUAL POSTGRADUATE COURSE
Aspen Institute for Humanistic Studies, Aspen, Colorado
July 20-22, 1972

Credit (AAGP): 12 hours.

Fee: $80 for AGA members; $100 for non-members; $25 for those in training status.

For further information, write: Mrs. Frances T. Chalmers, AGA Postgraduate Course, P.O. Box 190, McLean, Virginia 22101.



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Office of Postgraduate Medical Education University of Colorado School of Medicine Denver, Colorado

CLINICAL DERMATOLOGY FOR THE FAMILY PHYSICIAN (Limited)
April 27-29, 1972

15TH ANNUAL POSTGRADUATE COURSE IN PEDIATRICS
Aspen, Colorado
July 30-August 2, 1972

Ogden Surgical Society
27TH ANNUAL MEETING
Ogden, Utah
May 17-19, 1972

No registration fee.

For further information, write: Dean W. Packard, MD, Chairman, Reservations Committee, 3905 Harrison Boulevard, Ogden, Utah 84403.

Montana Medical Association
25TH INTERIM MEETING
Colonial Motor Hotel, Helena, Montana
April 14-15, 1972

Fitzsimons General Hospital, University of Colorado School of Medicine, and American Thoracic Society
25TH ANNUAL SYMPOSIUM ON PULMONARY DISEASES
Fitzsimons General Hospital, Denver, Colorado
September 11-15, 1972

For further information, write: Program Director, Pulmonary Disease Symposium, Fitzsimons General Hospital, Denver, Colorado 80240.

American Diabetes Association
FOURTH ALLIED HEALTH POSTGRADUATE COURSE IN DIABETES
Nashville, Tennessee
April 17-19, 1972

Fee: $60 for members of the American Diabetes Association and $75 for nonmembers.

Credit: (AADA): 13 hours.

For further information, write: American Diabetes Association, 18 East 48th Street, New York, New York 10017.

Duke University Medical Center
FOURTH ANNUAL DUKE CONFERENCE ON PHYSICIAN'S ASSISTANTS
Durham Hotel, Durham, North Carolina
April 20-21, 1972

Fee: $70 if registered before April 10; $75 if registered after April 10; $70 for AAPA members.

For further information, write: Fourth Annual Duke Physician's Assistants Conference, Department of Community Health Science, P.O. Box 2914, Duke Medical Center, Durham, North Carolina 27710.

The New York Hospital-Cornell Medical Center

INTERNATIONAL SYMPOSIUM ON ANALGESICS

Cornell University Medical College Auditorium, New York, New York
April 26-27, 1972

No registration fee.

For further information, write: Alan Van Poznak, MD, Clinical Professor of Anesthesiology, Department of Anesthesiology, Cornell Medical Center, 525 East 68th Street, New York, New York 10021.

American College of Sports Medicine

19TH ANNUAL MEETING
Philadelphia, Pennsylvania
May 1-3, 1972

The tentative program includes symposia papers on wrestling, the precollege athlete, perceived exertion during muscular work, and "How-To" sessions on the following topics: Prescription for Exercise; Examinations for Inequalities of Strength; Preventative Care of the Feet; Relating to the Neurotically Inclined Athlete; Use of Game Films for Obtaining History of Injury; and Legal Aspects of Sports. For additional information, contact: Donald E. Herrmann, Executive Secretary, American College of Sports Medicine, 1440 Monroe Street, Madison, Wisconsin 53706.

National Paraplegia Foundation

INTERNATIONAL CONFERENCE ON PARAPLEGIA CURE
The Breakers, Palm Beach, Florida
May 1-3, 1972

For further information, write: National Paraplegia Foundation, 333 North Michigan Avenue, Chicago, Illinois 60601.

International Childbirth Education Association

SEVENTH BIENNIAL INTERNATIONAL CONVENTION

Pfister Hotel, Milwaukee, Wisconsin
May 22-25, 1972

For further information, write: ICEA Convention, 11420 West Belmar Drive, Hales Corners, Wisconsin 53130.

American Medical Association and Harris County Medical Society

FIRST NATIONAL SYMPOSIUM ON COMMUNITY EMERGENCY MEDICAL SERVICES
Astroworld Hotel, Houston, Texas
May 26-27, 1972

Fee: $50.

For further information, write: Harris County Medical Society, 400 Jesse H. Jones Library Building, Texas Medical Center, Houston, Texas 77025.

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For the care and treatment of Psychiatric disorders.

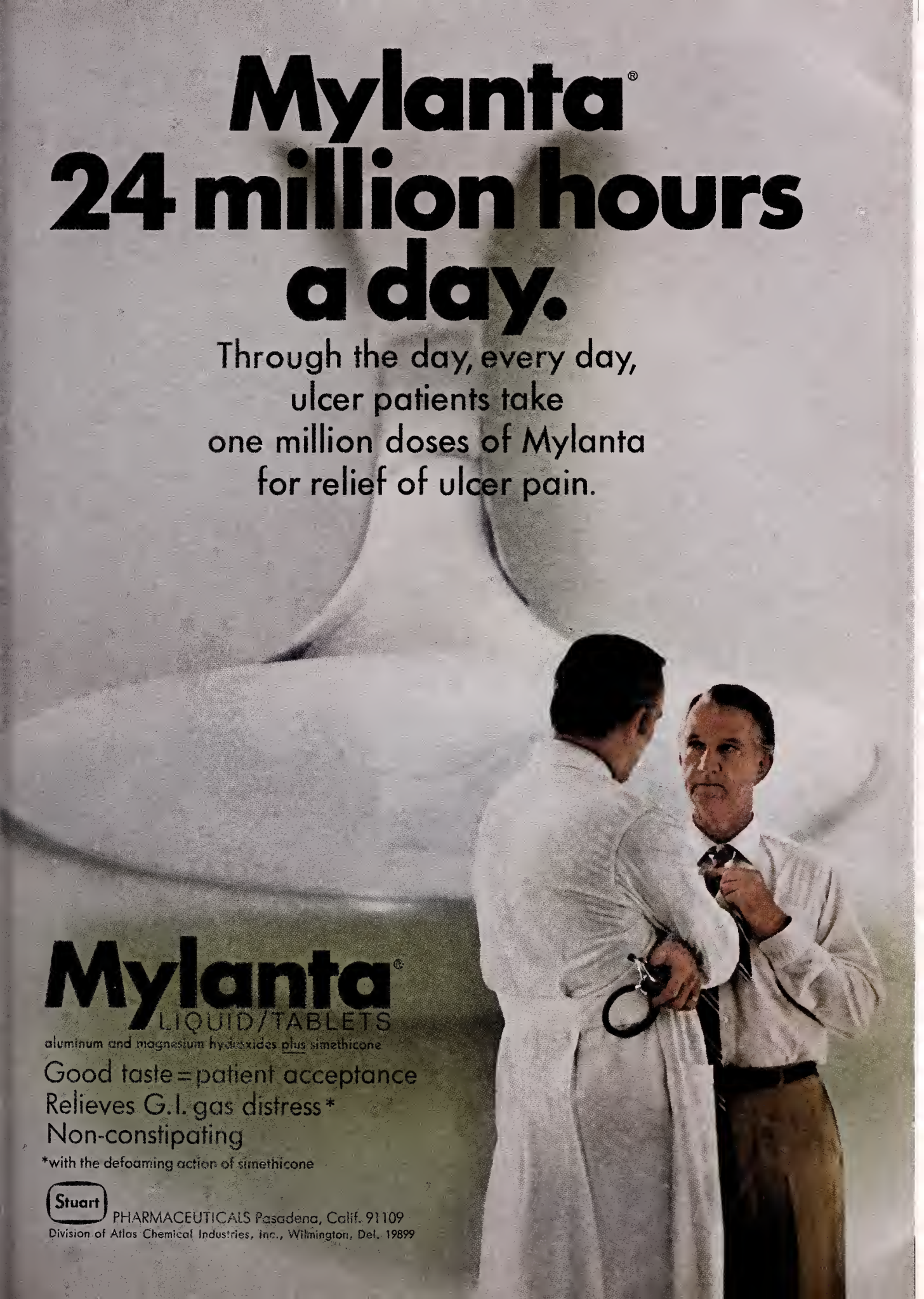
Individual and Group Psychotherapy and Somatic Therapies.

Occupational, diversional and outdoor activities.

X-ray, Clinical Laboratory and Electroencephalography.

Mylanta®
24 million hours a day.

Through the day, every day,
ulcer patients take
one million doses of Mylanta
for relief of ulcer pain.



Mylanta®
LIQUID/TABLETS
aluminum and magnesium hydroxides plus simethicone

Good taste = patient acceptance
Relieves G.I. gas distress*
Non-constipating

*with the defoaming action of simethicone

Stuart PHARMACEUTICALS Pasadena, Calif. 91109
Division of Atlas Chemical Industries, Inc., Wilmington, Del. 19899

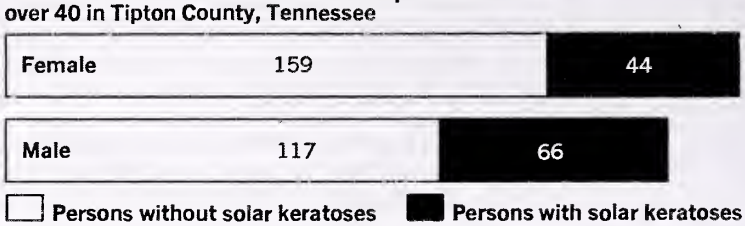
What it means to live and work in Tipton County, Tennessee

Persons who are white and over 40 have one chance in four of having solar keratoses... which may be premalignant

An epidemiologic study* conducted in Tipton County, Tennessee, revealed that 28.5% of white persons over 40 had solar keratoses; most had multiple lesions. Cluster sampling projected an estimated prevalence of 32.5% for white males and 19.5% for white females.

Though this is an unusually high percentage of affected persons, these lesions can occur in any white population, wherever people work or play out of doors.

Prevalence of solar keratoses in white persons over 40 in Tipton County, Tennessee



*Data on file, Hoffmann-La Roche Inc., Nutley, New Jersey.

Solar, actinic, senile keratoses

Called by many names, the typical lesion is flat or slightly elevated, brownish or reddish in color, papular, dry, adherent, rough, sharply defined; usually multiple lesions, chiefly on exposed portions of the skin.

Sequence/selectivity of response

Erythema in areas of lesions may begin after several days of therapy; height of reaction (only in affected areas)* usually occurs within two weeks, declining after discontinuation of therapy. Since this response is so predictable, lesions that do not respond should be biopsied to rule out the presence of a frank neoplasm.

Cosmetic results

Cosmetic results are highly favorable. Incidence of scarring is low—important with multiple facial lesions. Efudex should be applied with care near the eyes, nose and mouth.

5% cream–a Roche exclusive

Only Roche formulates the 5% cream... high in patient acceptability... high in clinical efficacy, especially for lesions of hands and forearms... economical.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Multiple actinic or solar keratoses.

Contraindications: Patients with known hypersensitivity to any of its components.

Warnings: If occlusive dressing used, may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.

Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.

Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with nonmetal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.

How Supplied: Solution, 10-ml drop dispensers—containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)aminomethane, hydroxypropyl cellulose, parabens (methyl and propyl) and disodium edetate.

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In acute gonorrhea

(urethritis, cervicitis, proctitis when due to susceptible strains of N. gonorrhoeae)

Sterile Trobicin®
(spectinomycin dihydrochloride pentahydrate)—For Intramuscular injections, 2 gm vials containing 5 ml when reconstituted with diluent. 4 gm vials containing 10 ml when reconstituted with diluent.
An aminocyclitol antibiotic active *in vitro* against most strains of *Neisseria gonorrhoeae* (MIC 7.5 to 20 mcg/ml). Definitive *in vitro* studies have shown no cross resistance of *N. gonorrhoeae* between Trobicin and penicillin.

Indications: Acute gonorrheal urethritis and proctitis in the male and acute gonorrheal cervicitis and proctitis in the female when due to susceptible strains of *N. gonorrhoeae*.

Contraindications: Contraindicated in patients previously found hypersensitive to Trobicin. Not indicated for the treatment of syphilis.

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Warnings: Antibiotics used to treat gonorrhea may mask or delay the symptoms of incubating syphilis. Patients should be carefully examined and monthly serological follow-up for at least 3 months should be instituted if the diagnosis of syphilis is suspected.

Safety for use in infants, children and pregnant women has not been established.

Precautions: The usual precautions should be observed with atopic individuals. Clinical effectiveness should be monitored to detect evidence of development of resistance of *N. gonorrhoeae*.

Adverse reactions: The following reactions were observed during the single-dose clinical trials: soreness at the injection site, urticaria, dizziness, nausea, chills, fever and insomnia.
During multiple-dose subchronic tolerance studies in normal human volunteers, the following were noted: a decrease in hemo-

Trobicin®

sterile spectinomycin dihydrochloride pentahydrate, Upjohn

single-dose intramuscular treatment

High cure rate:* 96% of 571 males, 95% of 294 females
(Dosages, sites of infection, and criteria for diagnosis and cure are defined below.)**

Assurance of a single-dose, physician-controlled treatment schedule

No allergic reactions occurred in patients with an alleged history of penicillin sensitivity when treated with Trobicin, although penicillin antibody studies were not performed

Active against most strains of Neisseria gonorrhoeae in vitro (M.I.C. 7.5-20 mcg/ml)

A single two-gram injection produces peak serum concentrations averaging about 100 mcg/ml in one hour (average serum concentrations of 15 mcg/ml present 8 hours after dosing)

Note: Antibiotics used in high doses for short periods of time to treat gonorrhea may mask or delay the symptoms of incubating syphilis. Since the treatment of syphilis demands prolonged therapy with any effective antibiotic, and since Trobicin is not indicated in the treatment of syphilis, patients being treated for gonorrhea should be closely observed clinically. Monthly serological follow-up for at least 3 months should be instituted if the diagnosis of syphilis is suspected. Trobicin is contraindicated in patients previously found hypersensitive to it.

*Data compiled from reports of 14 investigators. **Diagnosis was confirmed by cultural identification of *N. gonorrhoeae* on Thayer-Martin media in all patients. Criteria for cure: negative culture after at least 2 days post-treatment in males and at least 7 days post-treatment in females. Any positive culture obtained post-treatment was considered evidence of treatment failure even though the follow-up period might have been less than the periods cited above under "criteria for cure" except when the investigator determined that reinfection through additional sexual contacts was likely. Such cases were judged to be reinfections rather than relapses or failures. These cases were regarded as non-evaluatable and were not included. JA72 1848-6

globin, hematocrit and creatinine clearance; elevation of alkaline phosphatase, BUN and SGPT. In single and multiple-dose studies in normal volunteers, a reduction in urine output was noted. Extensive renal function studies demonstrated no consistent changes indicative of renal toxicity.

Dosage and administration: Keep at 25°C and use within 24 hours after reconstitution with diluent.
Male—single 2 gram dose (5 ml) intramuscularly. Patients with gonorrheal proctitis and patients being re-treated after failure of previous antibiotic therapy should receive 4 grams (10 ml). In geographic areas where antibiotic resistance is known to be prevalent, initial treatment with 4 grams (10 ml) intramuscularly is preferred.
Female—single 4 gram dose (10 ml) intramuscularly.

How supplied: *Vials, 2 and 4 grams—with ampoule of Bacteriostatic Water for Injection with Benzyl Alcohol 0.9% w/v.* Reconstitution yields 5 and 10 ml respectively with a concentration of spectinomycin dihydrochloride pentahydrate equivalent to 400 mg spectinomycin per ml. For intramuscular use only.
Susceptibility Powder—for testing *in vitro* susceptibility of *N. gonorrhoeae*.

Human pharmacology: Rapidly absorbed after intramuscular injection. A two-gram injection produces peak serum concentrations averaging about 100 mcg/ml at one hour with 15 mcg/ml at 8 hours. A four-gram injection produces peak serum concentrations averaging 160 mcg/ml at two hours with 31 mcg/ml at 8 hours.
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R O RORER E R

THE WASHINGTON SCENE

A monthly news summary from the nation's Capitol by the Washington Office of the AMA.

The Senate Finance Committee has completed public hearings on the catch-all social security amendments bill (H.R. 1) and is expected to approve legislation soon containing important peer review changes in Medicare and Medicaid and a national catastrophic protection plan.

As approved by the House last spring, the bill was much the same as the one that went through the previous Congress only to be stalled when there wasn't time at the end of the session to reconcile differences in the House and Senate versions.

The bill before the committee would:

(1) Authorize health maintenance organization (HMO) experiments;

(2) Extend Medicare to disabled social security beneficiaries and authorize experiments with peer review mechanisms;

(3) Restrict physicians' fee increases to a cost-of-living index;

(4) Give the HEW Department stronger policing powers over abuses;

(5) Authorize experiments with prospective payments to institutions.

The committee appears certain to add two major provisions. One would institute a sweeping catastrophic protection plan for all Americans administered by social security; the other is the professional standards review organization (PSRO) plan under which groups of physicians including medical societies and foundations would have first opportunity to set up monitoring programs for Medicare and Medicaid in their areas.

In a statement filed with the Senate Finance Committee, the American Medical Association commented on a number of provisions of the proposed legislation. With respect to the catastrophic protection plan, the AMA advised against its adoption, saying: "We believe that catastrophic coverage, to achieve its purpose, must be tied in with adequate basic coverage in order to afford the best range of protection." The Association recommended in its place that the basic and catastrophic provisions of its own Medicredit proposal be adopted by the Committee.

The Association supported provisions in H.R.1 authorizing the Secretary to conduct experiments in community-wide peer review programs. It pointed to the many peer review activities presently ongoing, noting that under the experimental authority various programs, including those with professional standards review organization (PSRO) features, could receive necessary, broad-scale experimentation. It stressed the need for further research and experimentation, cautioning against the adoption of a single nationwide program.

"If enacted", the AMA said, "PSRO would lock peer review into one single, untested, nationwide program, with unpredictable consequences. On the other hand, many valuable benefits can be gained through appropriate experimentation. H.R.1 (prior to the PSRO amendment) provides authority to the Secretary of HEW to conduct such experiments in community-wide peer review programs, and we believe it would be wise to implement this authority before any single overriding plan is adopted."

With respect to the Health Maintenance Organization (HMO) provision of the bill, the AMA statement noted that under separate legislation "an effort is underway to bring HMO's into existence without evidence of their economic justification or viability without continuing federal subsidy after being established". The AMA said that "before any such program is initiated nationwide and is held out as a realistic benefit available to beneficiaries under the Medicare program, it is our recommendation that cost and utilization data first be developed.

"Besides the consideration of whether the HMO provision will in fact result in cost savings to the program, there is the paramount consideration of the health care which will be provided to the beneficiary. We are not alone in expressing serious concern about a program which provides incentives to providers for lower utilization of benefits, and this aspect of the program—underutilization—must be watched very closely so that the beneficiaries receive the best quality care. There are many additional questions to be resolved concerning the efficacy of this form of contract medicine. Moreover, it is important that

the control and operation of the HMO be under the direction and supervision of physicians so that high quality care is provided. Operation of the health maintenance organizations under the direction of individuals or groups not competent in the health field should not be sanctioned."

The AMA statement also:

(1) Opposed the proposed Medicare limits of 75 per cent on prevailing charge levels, stating, "We know of no such direct statutory limitations on prices, wages or charges in other private sectors of the economy."

(2) Opposed as "unjustifiably repetitive" a further study of inclusion of chiropractic benefits under Medicare.

(3) Said needy disabled should be covered under Medicaid rather than included in toto under Medicare and thus changing the concept of Medicare as a program for those over age 65.

(4) Opposed any federal restrictions on drugs physicians may prescribe for patients covered under federal programs.

(5) Urged the Committee to extend for five years maternal and child health programs of social security.

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Denver Doctors Author New Book

The first in-depth study of pediatric gastroenterology has been published by two Denver pediatricians and a professor in Montreal, Canada. The authors of *Pediatric Clinical Gastroenterology* are Dr. Arnold Silverman, Dr. Frank T. Cozzetto, and Dr. Claude C. Roy. Dr. Silverman is director of graduate education and head of pediatric gastroenterology at Children's Hospital in Denver and associate clinical professor of pediatrics at the University of Colorado Medical Center; Dr. Cozzetto is associate professor of pediatrics at the Medical Center and was formerly the medical director of Children's Hospital; and Dr. Roy is professor of pediatrics at Hospital Sainte Justin and the University of Montreal.

The book fills a void in the area of pediatric gastrointestinal problems and goes into unprecedented detail about this problem in its three major segments. Nearly 300 illustrations are included in the 580-page book, which is available for $39.50.

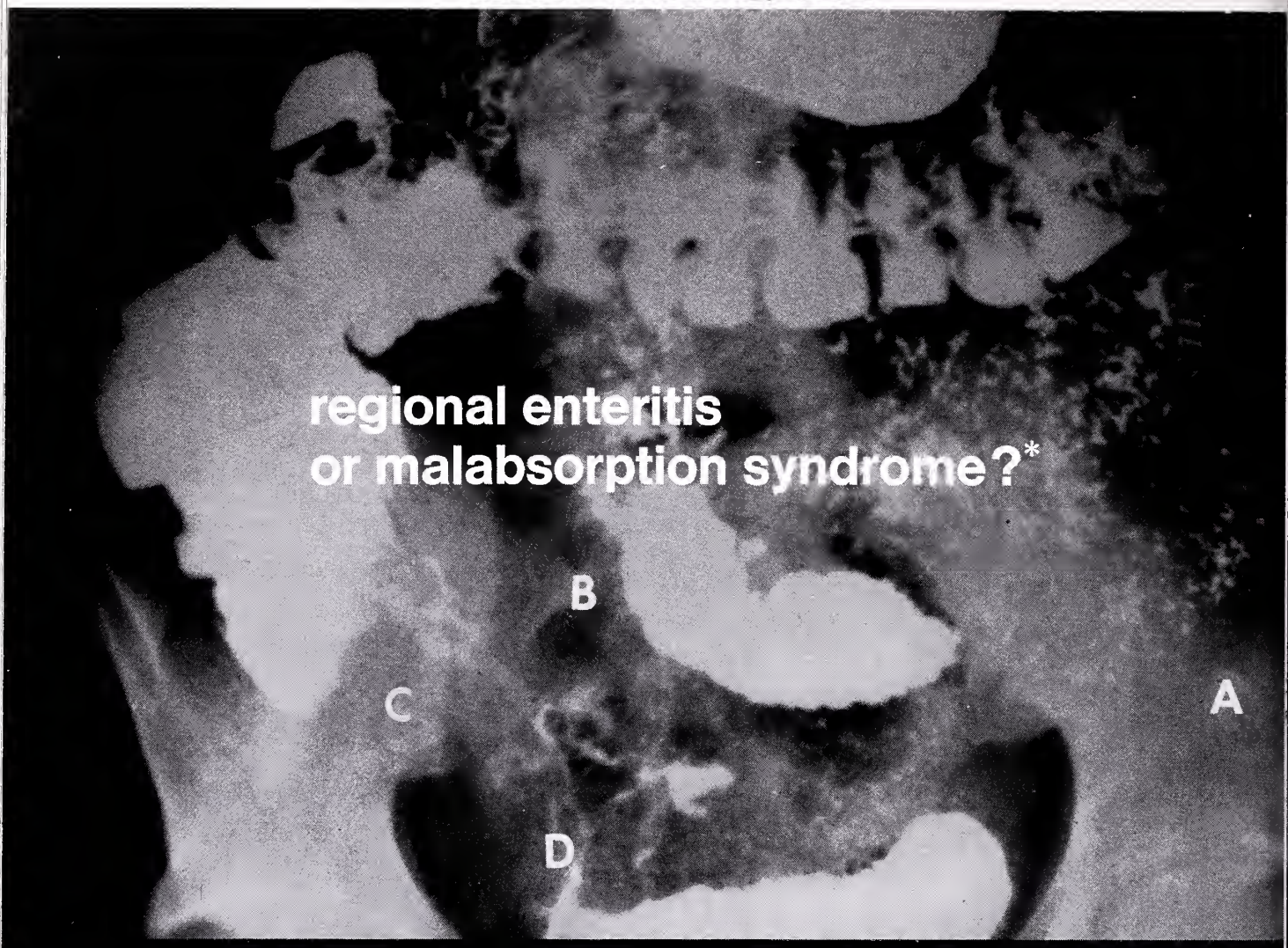
* * * * *

NIH Study Requires Physician Cooperation

The cooperation of physicians is requested in the referral of patients with melanomas and sarcomas of soft tissue and bone for studies being conducted by the National Cancer Institute's Surgery Branch at the Clinical Center, National Institutes of Health, Bethesda, Maryland. Needed are patients with primary tumors and those with limited metastases which are amenable to primary surgical treatment. Selected patients will be admitted to combined surgery, chemotherapy, and immunotherapy protocols. Patients treated will receive adjuvant therapy according to criteria based on tumor anatomic location and histologic type. Immunologic studies will be performed preoperatively and at intervals postoperatively to monitor the effects of adjuvant therapy and provide sensitive means of followup for earlier detection of recurrent tumor. Upon completion of their studies, patients will be returned to the care of the referring physician who will receive a summary of findings.

Referral of patients with cancer of the oral cavity, pharynx, larynx, or paranasal sinuses is also requested. Patients selected for admission and treatment will be included in an adjuvant-therapy protocol where the treatment modalities of surgery, irradiation, and chemotherapy will be combined in such a manner as to determine the feasibility of such a therapeutic approach and its potential for decreasing the incidence of local recurrence and metastases. Post-treatment studies are planned which will include cooperative follow-up between the referring physician and the National Cancer Institute.

Physicians interested in having their patients considered for admission to these studies may write or telephone: Alfred S. Ketcham, MD, Clinical Center, Room 10-N-116, National Institutes of Health, Bethesda, Maryland 20014, (301) 496-4164.



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* Regional enteritis is revealed in this x-ray. The diagnostic signs include scattering (A), "moulage sign" or claylike clumps (B), destruction of the terminal ileal mucosa (C), and fistulation adjoining the terminal ileum (D). There is no thickening of the bowel mucosa or fistulation in malabsorption syndrome.

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Warning: Although generally safer than the amphetamines, use with great caution in patients with severe hypertension or severe cardiovascular disease. Do not use during first trimester of pregnancy unless potential benefits outweigh potential risks.

Adverse Reactions: Rarely severe enough to require discontinuation of therapy, unpleasant symptoms with diethylpropion hydrochloride have been reported to occur in relatively low incidence. As is characteristic of sympathomimetic agents, it may occasionally cause CNS effects such as insomnia, nervousness, dizziness, anxiety, and jitteriness. In contrast, CNS depression has been reported. In a few epileptics an increase in convulsive episodes has been reported. Sympathomimetic cardiovascular effects reported include ones such as tachycardia, precordial pain, arrhythmia, palpitation, and increased blood pressure. One published report described T-wave changes in the ECG of a healthy young male after ingestion of diethylpropion hydrochloride; this was an isolated experience, which has not been reported by others. Allergic phenomena reported include such conditions as rash, urticaria, ecchymosis, and erythema. Gastrointestinal effects such as diarrhea, constipation, nausea, vomiting, and abdominal discomfort have been reported. Specific reports on the hematopoietic system include two each of bone marrow depression, agranulocytosis, and leukopenia. A variety of miscellaneous adverse reactions have been reported by physicians. These include complaints such as dry mouth, headache, dyspnea, menstrual upset, hair loss, muscle pain, decreased libido, dysuria, and polyuria.

Convenience of two dosage forms: TEPANIL Ten-tab tablets: One 75 mg. tablet daily, swallowed whole, in midmorning (10 a.m.); TEPANIL: One 25 mg. tablet three times daily, one hour before meals. If desired, an additional tablet may be given in midevening to overcome night hunger. Use in children under 12 years of age is not recommended.

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unwelcome bedfellow for any patient– including those with arthritis, diabetes or PVD

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(quinine sulfate 260 mg., aminophylline 195 mg.)

Specific therapy for night leg cramps.

Publication rules and suggestions to authors

1. Who may submit articles. The Rocky Mountain Medical Journal ordinarily accepts only articles prepared by members of the state societies we serve and by guest speakers at their official meetings.

2. Method of preparation. All material for publication must be typewritten, double spaced, with liberal margins, using only one side of the paper, pages consecutively numbered, and preferably on standard 8½ x 11 white bond paper. Carbon copies are *not* acceptable.

Title (preferably short) and author's name, city and state must appear at the top of the first page. Second and subsequent pages should be identified with consecutive page numbers and author's surname. If physician authors possess more than one degree, the MD only is used. Lesser degrees of non-MD authors or co-authors may be used.

Please include beneath the title or at the top of the first page a brief paragraph stating what the article is designed to show and, therefore, why it should be read. This introductory feature is, in editorial parlance, called the "blurb"; it is printed in bold type.

3. Where to submit material. All copy must be sent to the editor for the state in which the material originates. Editors for each state, with their mailing addresses, are listed monthly on the Table of Contents page of the Journal.

4. Acceptance or rejection. The state editor will (1) tentatively accept the article, (2) return it to the author with suggestions for revision, or (3) reject it. He will edit and forward approved copy to the publication office in Denver for final editing and scheduling.

5. Order of publication. Ordinarily, articles will be published in the order received. Those whose value is seasonal, whose value would be lost if publication is delayed, or which reflect priority of original research, are given special consideration. State presidential addresses, programs, state society minutes, and timely organization announcements are given priority.

6. Length of articles. Scientific papers should be "boiled down" not to exceed ten pages of double-spaced typewritten standard 8½ x 11 inch sheets. Shorter papers are more acceptable to editors and readers, and earlier publication is probable. Every journal is in competition for the reader's time, and condensation is the order of the day. For this reason, and because of financial and space limitations, we request that copy be condensed to the greatest extent consistent with conveying the message.

7. Illustrations. A limited number of illustrations or "cuts," usually up to six, will ordinarily be accepted within our own publication budget if the editor believes they enhance the value of the article. Clear photos, simple diagrams or line drawings in black on white, printing rather than writing, reproduce well. Cuts should be mounted separately, and the paper or cardboard mounts should be the same size as that upon which the article is typed. Each should have its caption below: Fig. 1, Fig. 2, etc., with a short descriptive sentence. Authors will be billed our cost for excess above six cuts.

8. Tables. Tables should be simple, presenting only brief relevant data, amply spaced. They should be placed at the back of the manuscript on separate sheets. Each should have its number and title above: Table 1, Title; Table 2, Title; etc. Long, large, or complicated tables ordinarily are not acceptable.

9. Case reports. Case reports are popular with our readers. A brief introductory statement concerning the condition or disease, tells why the case is presented. The report follows with a separate heading, CASE REPORT or CASE 1, CASE 2, etc. Include only relevant, positive laboratory and other data. Names, initials, and numbers are unimportant; age, sex, and sometimes occupation are significant. Minimize dates; then make it month, date, year—as February 9, 1969; not 2/9/69. After the case presentation, review or sum it up under a heading such as Discussion, Comment, Summary or Conclusion.

10. Footnotes. Footnotes must be brief. One at the bottom of the first page should state the Society and date of presentation, and institutional origin, if any. Special titles or position of the author, acknowledgements, etc., will be added according to simplicity, editorial policy and discretion.

11. References. Reference lists rarely add to the value of an article for the majority of readers. We will make every effort to publish short reference lists, but long ones will be deleted. Incidentally, the proper heading is "References," not "Bibliography." The latter implies everything in the literature upon the subject. Make them uniform in style and brief, as: Jones, W. K.: Pyelonephritis in Infancy. JAMA 141:75. 1964.

12. Editorials. We would like to have more submitted by our State editors and the membership at large. Readers must get tired of thunder from publication headquarters in Denver; frankly, we do too! Speak out, and we'll sign your name, initials, or respect your request for anonymity, as you choose. If you don't like something we do or say, please let us in on it; we could even stand to hear about it if something happens to please you. A "Letter to the Editor" may help you get something off your mind. We're asking for it and we have a place to put it—in the Journal, that is!

13. Proofs. Galley proofs are submitted to the author, and prompt return is essential. Authors should correct typographical, grammatical, or rhetorical errors, but do not reinsert or rewrite sentences, paragraphs, tables, etc., which an editor may have deleted, condensed, or paraphrased. When an article reaches the galley-proof stage, the author may NOT re-edit his article; that is the privilege of the Journal's editors.

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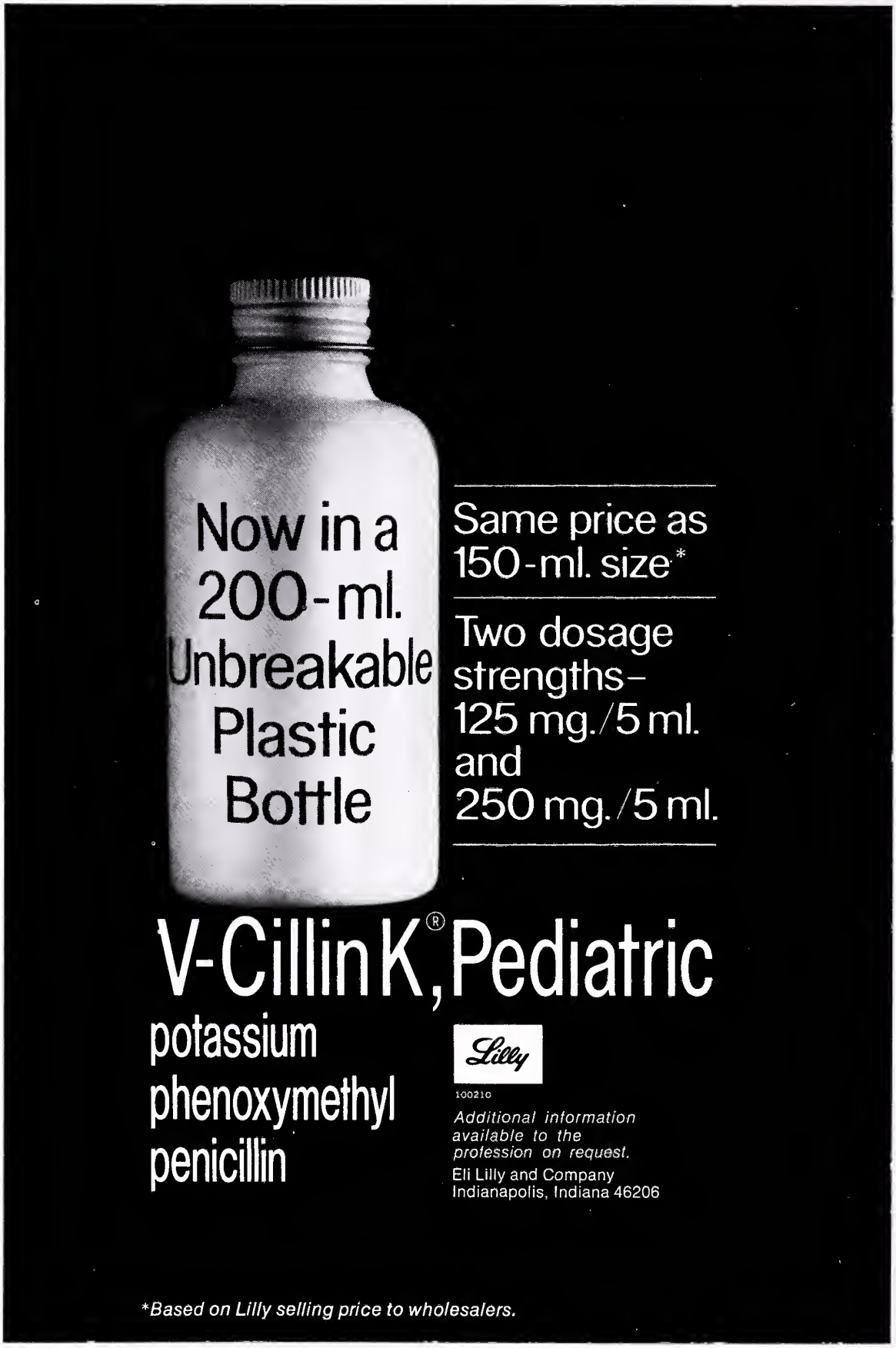
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THE BRITISH EX-MINISTER OF HEALTH has dubbed government medical services in England unsatisfactory. J. Enoch Powell, former British Minister of Health, is recognized by many as the world's leading authority on government-controlled medicine. He spoke before the annual meeting of the Association of American Physicians and Surgeons in Clayton, Missouri, on October 8. He admitted some advantages in the British system of health care, but warned against attributing them to the British National Health Service. During his three years (1960-1963) as head of the Service his object was to make government-run medicine work. He came to the conclusion that it does not give satisfaction and cannot because of its inherent nature. He has continued to observe closely the British system since that time and obviously has not changed his mind.

Inferior Medical Care for Greater Cost

The then President of the AAPS, Dr. Maurice W. Peterson, has stated that our Department of Health, Education and Welfare does not seek opinions and testimony such as those of Enoch Powell even though "it is exactly the kind the American people need". Dr. Peterson furthermore said, "HEW and vote-hungry politicians and certain other elements of American society believe the only way to solve problems is to increase taxation, spending, and control of people."

This sounds familiar in view of the fact that American vote-hungry politicians exploit the entering wedge of socialization—such as care of the elderly, "free" medical care, and so on even to total health care for everyone—as a platform for re-election to Congress or eventual Presidential candidacy. Exploitation of the tendency of people to "get their share" of universal medical service is clearly selfish on the part of politicians. They appear to ignore the fact that people then demand more and longer hospitalization which results in over-utilization of medical care and facilities. The costs rise and waste increases, indeed a vicious circle. It is unfortunate when the wisdom and experience of an authority like Powell appears to be ignored.

Editorial columns in our *Rocky Mountain Medical Journal* have stated repeatedly that Old World experience serves as a pattern of where we are headed, and we can profit by their experience—if we will. The *real* facts about what happens in socialized medicine are clearly available through those who have been there in the front lines. Another significant statement of Mr. Powell was that "good and bad service, in similar circumstances, are remunerated at one and the same price. That means poor and even inferior doctors can do as well financially as good doctors."

An American physician, Dr. Donald Quinlan, who formerly practiced under the British National Health Service, further amplified the extravagant costs of governmental medicine. He practices internal medicine in Northfield, Illinois. A native of Ireland who worked under England's nationalized health service from 1948 to 1953, he stated, "I feel myself being in the strange position that this is the second time around for me." Dr. Quinlan notes vilification of our profession and use of such words as "crisis", health care as a right, and increasing demands for health care as a political base for candidates aspiring to high office. He believes that lack of a system is a virtue rather than a vice. He came to regard each patient as a potential enemy who does not hesitate to bring the physician before disciplinary board for alleged inferior treatment. The patient is heard, right or wrong, for he has a vote. Seeing about 110 patients in seven office hours before beginning some 20 house calls each lasting three to four minutes results in dissatisfaction to physicians as well as patients. Missed diagnosis cannot help but occur. Thus, said Dr. Quinlan, wasteful political medicine does not result in better service for people; quality went down, not up, when the British government put medicine on an assembly-line basis in 1948.

Our profession did everything in its power to protect our people against the inefficiences and extravagance of Medicare. But now that it is not successful, the doctors are

blamed! In this election year of 1972, we are still striving to avert further overwhelming costs and another extravagant "crisis". Again, we have the opportunity to heed the experience of the Old World. It will indeed be tragic if their voices go unheard. Reports to the press on meetings like that of the Association of American Physicians and Surgeons and articles such as "Speakers Score Britain's Nationalized Medicine" in AMA News are not sufficient. The consumers—patients by the millions—should hear it now, and then again and again throughout this election year!

Here Are Some of the Figures

WHILE CONSIDERING "Inferior Medical Care for Greater Cost", let us have a look at costs of government-subsidized medical care compared with those of free-enterprise insurance carriers. Walter J. McNerney, President of the Blue Cross Association, outlined goals for a successful national program while speaking before the House Committee on Ways and Means. He was not favoring any specific bill but stated that the key to a successful program is a combination of public and private resources including "strong federal leadership and well-regulated participation by the private sectors". . . . He stated, "There are no absolutes. Each has its strengths and weaknesses. When new governmental health financing and delivery programs have been instituted here and abroad, inevitably costs have gone up. In 1947, in Britain, the early costs exceeded actuarial estimates by 235 per cent when the National Health Service was started. In the U.S., the experiences under Medicaid and Medicare exceeded estimates in the first year by 50 per cent and 25 per cent respectively. Medicaid federal outlay currently costs four times and Medicare costs twice as much as the original estimates. The Extended Care Facilities benefits in Medicare within the first year cost ten times the original estimate. Invariably, we tend to be unduly optimistic about costs. Perhaps we should not be so surprised when we make new services available that people use them or that doctors will order them."

Dr. Otto C. Page, President of the American Society of Internal Medicine, at the same NHI hearings as reported in "Legislative Roundup", the weekly report on national medical legislation, points to "prevalent social ills as a root cause of national health problems". He said, "Unlimited medical services alone cannot substitute for the correction of social, economic and environmental defects, and such attempts will inevitably be ineffective, disappointing, and very costly. Twenty-five cents worth of kerosene in a cold house might well be more effective than twenty-five dollars worth of medical evaluation in a warm clinic. . . . The primary physician is the person who will be both frustrated by, and blamed for, failure to improve poor health caused by social and economic conditions which are not correctable by simply providing more medical care. Indeed, professional competence can be a sterile achievement when social and economic conditions prevent the full and effective use of professional training and experience."

Again we say let us have a look at Old World experience while remembering that estimated costs of government insurance programs are undoubtedly conservative and, according to the experience in both Old and New Worlds, "free" national health services are extravagantly expensive and often represent sub-standard services for a lot more money!

Dangerous Toys

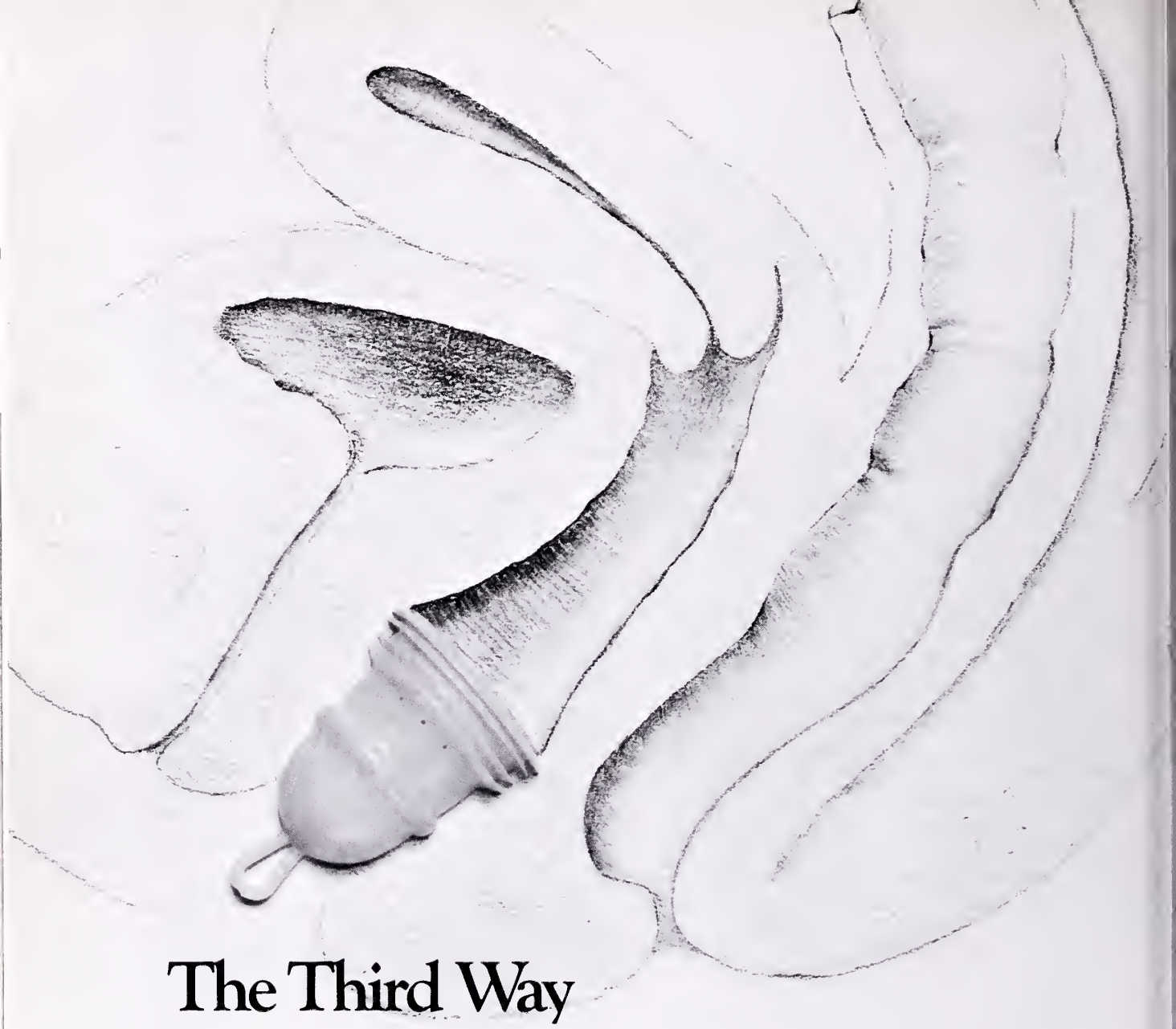
THERE HAVE BEEN MANY articles, chiefly in newspapers, upon the subject of dangerous toys. We first noticed them during the summer and early fall of 1971, presumably in anticipation of the great toy market prior to the holidays. Also, Edward M. Swartz, LLD, an attorney of Boston, Massachusetts, has spoken and written upon the subject. He is related to the famous toy outlet, F.O.A. Swartz in New York City. Mr. Swartz apparently has waged a one-man campaign, at least for a time, to put many dangerous toys off the market and to alter others for reasons of safety. He delivered the Plastic Surgery Research Council Lecture,

"Toys That Don't Care" before the 40th annual meeting of the American Society of Plastic and Reconstructive Surgeons and its Educational Foundation in Montreal, Quebec, Canada in October 1971. It was a great and inspiring talk by this dedicated attorney who knows his subject in depth, including many cases of litigation which have followed tragic accidents with toys. Incidentally, he mentioned that toy manufacturers had threatened him with a suit of $5 million for harming their industry. Mr. Swartz countered their "offer" with the statement that there would be an immediate counter-suit for $25 million for damage to children and the young of all ages who have been injured by explosions, fire, sharp edges, loose parts, chemicals, and other elements of dangerous toys. And that was the end of that! Many surgeons and inspired wives returned home from Montreal determined to instigate activities in many organizations and at all levels to put a stop to manufacture and sale of hazardous toys.

From that time on, articles have appeared from many sources, fortunately. Some of the titles are as follows: Volunteers Help Remove Banned Toys in Drive; FDA Recalls Dolls, Rattles as Hazards; One Hundred Fifty Toys Banned in FDA Crackdown; Safety Group Urges Wise Selection of Toys, Gifts; FDA Nobody's Plaything in Toys Debate. The latter, a long article which appeared in the *Denver Post* and the *Washington Post,* stated that at the end of 1970 the Consumers' Union (CU) was engaged in a court battle to force the Food and Drug Administration (FDA) to remove eight particularly dangerous toys from store shelves before Christmas. The FDA issued a list of 39 banned toys as long ago as December 21, 1970. The agency set up a program to find, review and, where necessary, recall or ban hazardous playthings. During the following year the FDA Bureau of Product Safety working under the Child Protection and Toy Safety Act, has passed on 1,000 toy samples. Some 250 have been banned or the manufacturer asked to redesign them. Manufacturers have voluntarily corrected 100 more. Plastic has been substituted for glass, sharp darts re-labeled "for adult use", shooting and exploding toys corrected, and sharp edges and small removable parts eliminated. About 5,000 new toys come onto the market each year and store inventories may list 12,000 items. The U. S. Public Health Service estimates 700,000 related injuries annually. There are probably millions of dangerous toys in homes at the present time. Mr. Swartz, "The Ralph Nader of the toy industry" recently said, "The situation is no better. The FDA has moved against certain toys, but others just as dangerous have replaced them." Toy Manufacturers of America, Inc., has members who account for over 85 per cent of some $3 billion in toys sold in our country annually. They claim to have a toy-safety assurance program. The TMA aims to establish standards to be submitted to the National Bureau of Standards within about a year. Others have gotten into the act—the Commerce Department, toy wholesaler and retailer, Lloyd Raport, who is president of Juvenile Sales, and various toy manufacturers and doll makers. In Michigan, thousands of toys have been voluntarily removed from the shelves of more than 300 Genesee County stores by a task force of some 600 college students, members of prosecutor Robert F. Leonard's Consumer Protection Council. This is one example of a gratifying willingness on the part of some stores to help protect unsuspecting consumers.

Along with dangerous toys, it is appropriate to mention many which are revolting, even though not dangerous. Mutilated soldiers on battle fields, dolls which perform acts of elimination, horror sights and gadgets, execution and torture equipment are bound to contribute to moral degradation. Some manufacturers defend themselves on the basis of demand, that people want such trash and will buy it for the youngsters. Perhaps this is just another part of the slipping moral standards in our country.

Members of the medical profession don't get into homes as often as in days gone by, but they necessarily become a part of injuries, destruction, death, unmorality, and disability and disease which inevitably follow. Physicians as individuals and through the many organizations of which we are a part should enter the crusade to salvage what we can for maintenance of safety and preservation of morality.



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Ventilation lung scan to differentiate embolism from emphysema*

Fred A. Deigert, MD, and Wayne W. Wenzel, MD, Denver, Colorado

Pulmonary emboli and emphysema both produce multiple defects on perfusion lung scans. They can be differentiated, however, with ^{133}Xenon gas ventilation lung scan. The single inhalation technic described is feasible in any medium-sized nuclear medicine department.

In any active department of nuclear medicine, the abnormal perfusion-type lung scan with multiple pulmonary vascular perfusion defects is frequently encountered. Deciding whether these defects are due to pulmonary embolus or to pulmonary emphysema is difficult. Both entities can produce multiple perfusion defects; both can be present in the middle-aged or elderly patient. Being able to differentiate the two is important because the therapeutic approach to each is entirely different.

When the referring physician is evaluating a middle-aged or elderly patient with chest pain and dyspnea and finds the EKG and chest X-ray normal, he may suspect pulmonary embolus and order a perfusion lung scan. If this shows multiple perfusion defects, he cannot be certain that these are not being produced by clinically unrecognized emphysema. Or, just as common, the patient may have known emphysema wih sudden chest pain. Does he also have pulmonary embolus?

Since it has been demonstrated that there is airway obstruction and air trapping in emphysema but not in embolism, the ventilation lung scan should be able to differentiate between these two entities.[1]

Recent advances in radiopharmacology have enabled us to visualize the lung with scans in two ways. ^{131}Iodine-tagged macroaggregate particles of albumin given I.V. lodge in the small capillaries outlining the pulmonary arterial system (perfusion lung scans). ^{133}Xenon gas inhaled outlines the open functioning alveoli of the respiratory tree (ventilation lung scan). ^{133}Xenon has been used to study a variety of pulmonary diseases. In chronic obstructive lung abnormalities, it can be used not only to quantitate but also to locate the sites and map out its extent.[2] Our purpose is to describe a convenient single inhalation technic for doing ventilation lung scans and to demonstrate its use in a practical clinical application—differentiating pulmonary embolus from emphysema (Fig. 1).

Materials

^{133}Xenon gas is readily available in the gas or liquid form. Commercially available dispensers facilitate the transfer from the liquid to the gas state so that it can be withdrawn into a syringe for assay and use. ^{133}Xenon has a physical half-life of 5.27 days and emits an 81 KeV gamma which is quite suitable for Anger-type gamma camera detection. Ten to 15 mCi. give adequate information density. with the single inhalation technic.

The gamma camera with diverging collimator is used because it will adequately image both lungs simultaneously. Polaroid prints and live time taping is done so that the procedure can be replayed if necessary for

*From the Nuclear Medicine and Radiotherapy Section of the Radiology Department, Presbyterian Medical Center, Denver, Colorado. Presented at the Annual Meeting of the Rocky Mountain Radiological Society, Denver, August 1971.

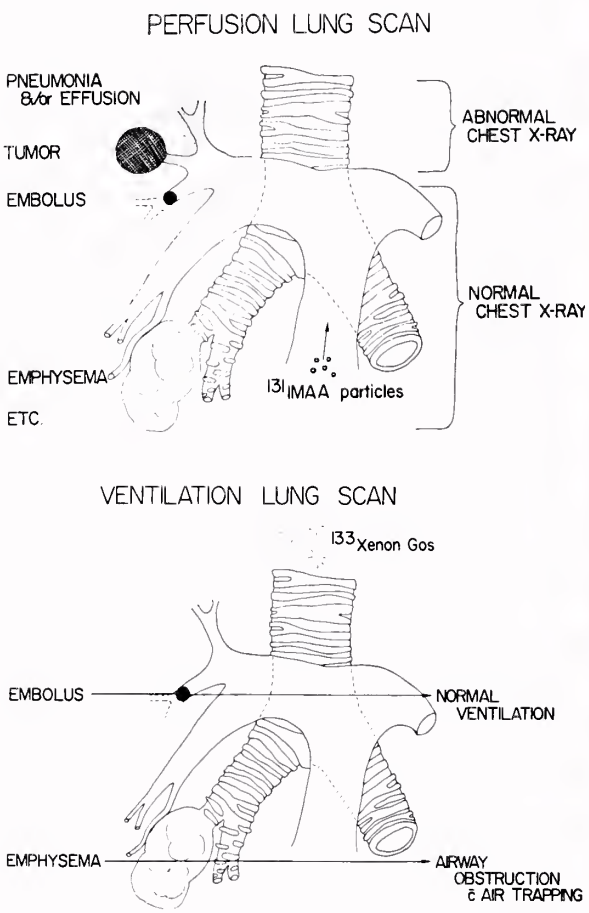

Fig. 1. Above: Perfusion lung scan outlines pulmonary arterial system.
Below: Ventilation lung scan outlines pulmonary airway system.

analysis. The 4096 multi-channel analyzer enables statistical evaluation of any portion desired. The study, however, can be done with the camera alone.

A plastic tube, one inch in diameter and ten inches long between two one-way valves, provides the chamber for injection and inhalation. The volume of air it contains is only 100 cc. so that complete removal of gas into the lungs can be accomplished with single inhalation. The chamber and evacuation tubing are shielded with lead to prevent exhaled air from interfering with camera imaging. Two weather balloons collect the gas during the procedure and are taken away for outside air evacuation technic. This eliminates bulky converted bronchospirometers and expensive duct work and fans. The apparatus is lightweight, compact, and convenient (Fig. 2).

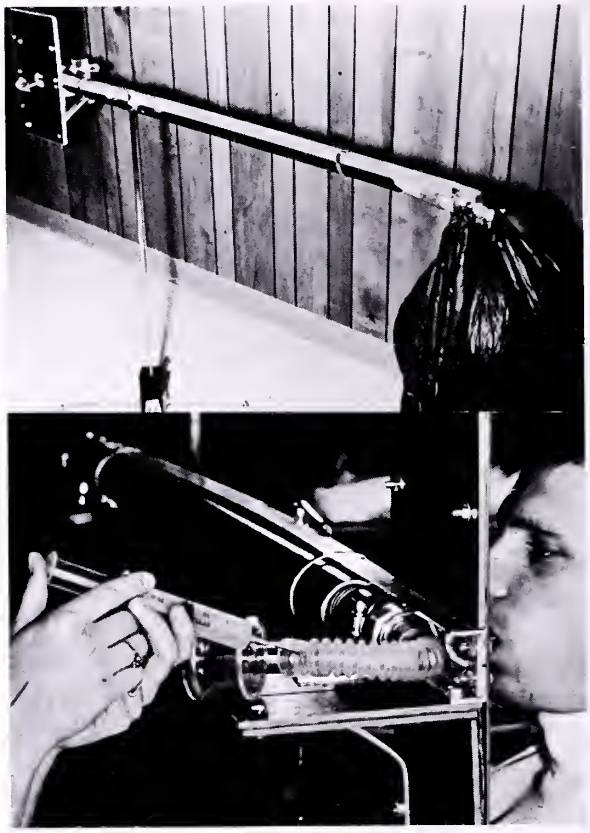

Fig. 2. Above: Compact ventilatory apparatus. Below: Injection of ^{133}Xe gas into tubing chamber for inhalation.

Procedure

The patient lies or preferably sits with the camera at his back. The posterior view is preferred to image both lungs simultaneously for comparison. Most of the lung volume can be seen in the posterior view with little interference of the cardiac silhouette.

A rubber mouthpiece is held by the teeth and nose clips are applied. After two practice deep respirations, the ^{133}Xenon gas in injected into the tubing chamber and the patient requested to take a single deep breath and hold it for five to ten seconds to record the inhalation image. Then he breathes normally into the apparatus for the next two minutes. Normal respiration permits rebreathing and intra-pulmonary mixing so that partially obstructed segments fill adequately for visualization of air trapping later on.

This technic has now been performed on over 50 persons and has proved to cause so

little discomfort and to be of such short duration that even moderately dyspneic patients can be adequately studied.

If a ^{131}I MAA lung scan has been done, it is preferable to wait 24 hours to permit background radioactivity to diminish. If it can be anticipated, the ventilation lung scan should be done first.

Recording and Analyzing

Polaroid prints of images are routinely obtained after inhalation to judge airway obstruction, taken at one-half and one minute to see respiratory mixing and at two minutes to judge for air trapping. If air trapping is present, additional views are done. The normal biologic half-life ($B\frac{1}{2}$) is 15 seconds with this technic; and therefore after eight half-lives or two minutes, there is less than one per cent of the radioactive gas in the normal ventilation lung scans (Fig. 3).

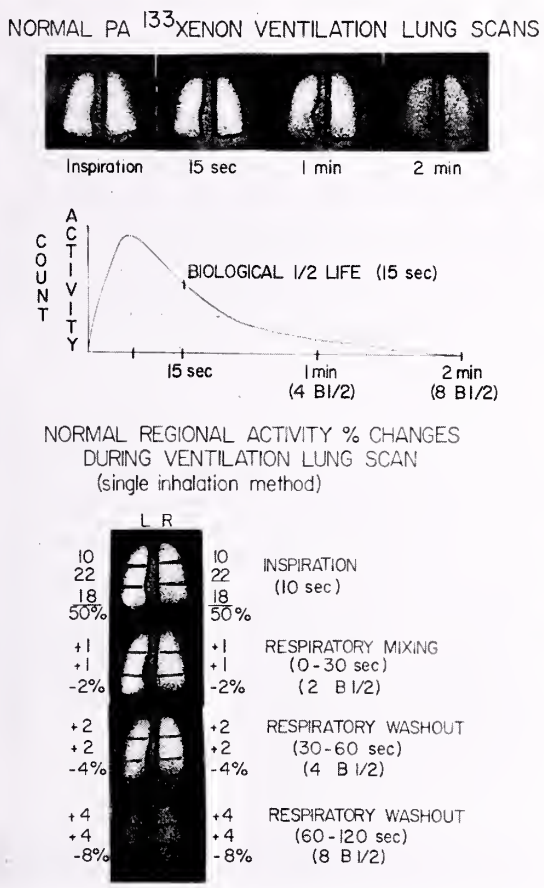

Fig. 3. Above: Normal change of activity seen with time.
Below: Normal regional changes in upper, middle, and lower thirds.

Analyzing the total quantity of counts in both lungs and arbitrarily setting this at 100 per cent, we find that each lung accumulates 50 $\pm$ 2 per cent air normally during inhalation. By dividing each lung into upper, middle, and lower thirds, we find that approximately ten per cent goes to each upper third, 22 per cent to each middle third, and 18 per cent to each lower third in this initial inspiration.

During respiratory mixing, more air is exchanged at the bases than from the upper two-thirds. About one per cent activity at each base is redistributed to the upper two-thirds for each $B\frac{1}{2}$. The importance of this finding is that after one to one and a half minutes, apparent residual air (radioactivity) in the upper two-thirds is not air trapping but normal.

Safety

The target organ is the lung which received a dose of .1 rad per 10 mCi. of $^{133}Xenon$ gas inhaled. If there is air trapping in any area, the dose to that segment is approximately .2 rads. This compares favorably to the ^{131}I MAA perfusion lung scans and bronchography with fluoroscopy procedures which give the lung 30 times more dosage.

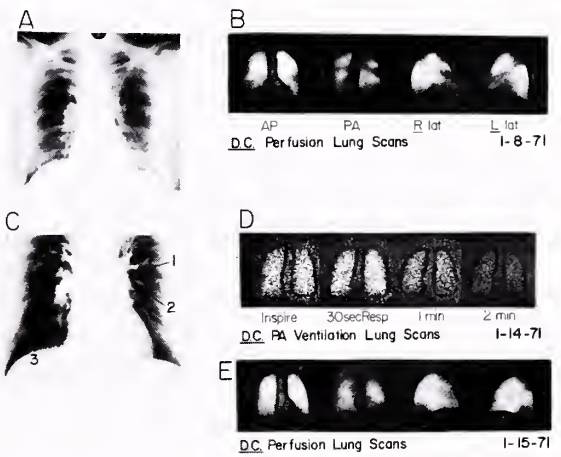

Fig. 4.
A. Normal chest x-ray.
B. Multiple perfusion lung scan defects.
C. Pulmonary arteriogram showing three vessels occluded.
D. Normal ventilation lung scan.
E. Follow-up perfusion lung scan one week later showing partial resolution of defects on anticoagulant therapy for pulmonary embolus.

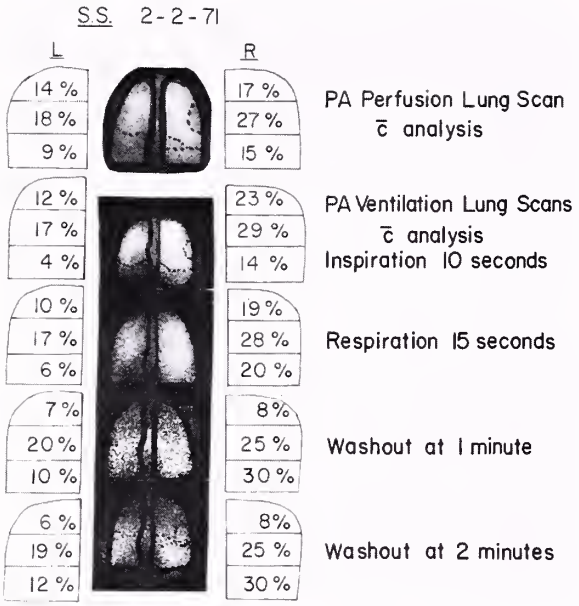

Fig. 5. Top perfusion image shows multiple defects. Below, the inhalation image shows airway obstruction to the same under-perfused areas. In the bottom image air trapping from emphysema in these same areas is identified.

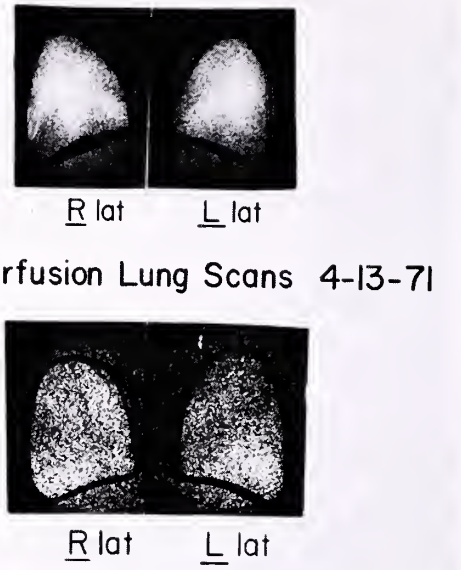

Fig. 6. Lateral views better demonstrate and map areas of emphysema under perfusion, above, and air trapping, below.

CASE REPORTS

CASE 1. A 54-year-old male entered the hospital with severe chest pain and dyspnea. Chest X-ray and EKG were normal. Perfusion lung scan using ^{131}I MAA showed multiple perfusion defects. Ventilation lung scan showed no obstruction of air on inspiration, good mixing over the next minute and at two minutes, normal washout with practically no activity remaining.

Pulmonary arteriography in this case revealed blood clots in larger vessels but additional smaller emboli were detected on the perfusion lung scan.

A follow-up perfusion lung scan done on this patient a week later showed that some of the perfusion defects had already started to clear on anticoagulant therapy. This further substantiated the diagnosis of pulmonary embolus since emphysema perfusion defects will not clear (Fig. 4).

CASE 2. A 49-year-old male was in the hospital recovering from abdominal surgery. Ten days postoperative, he developed chest pain and dyspnea. Chest X-ray and EKG were normal. A perfusion lung scan showed multiple perfusion defects. A ventilation lung scan done the following day revealed airway obstruction to the same segments which were under-perfused and significant air trapping in these same segments. This is diagnostic of pulmonary emphysema (Fig. 5).

CASE 3. A 55-year-old male with known pulmonary emphysema in whom a pulmonary embolus was suspected presented a more difficult problem. The diagnosis can be solved by using the combination of perfusion and ventilation lung scanning and comparing the segments involved on each scan. If a perfusion defect does not trap air, it is probably pulmonary embolus. If the perfusion defect traps air, it is probably not an embolus. This patient had ^{133}Xe gas activity remaining in emphysematous areas up to six minutes, allowing time to take lateral and even anterior views to better localize segments in which air trapping was taking place (Fig. 6).

Summary

Ventilation lung scanning with ^{133}Xenon radioactive gas can be a helpful nuclear medicine study in differentiating pulmonary embolus from emphysema. No air trapping is seen in embolism whereas significant air trapping is produced by emphysema. With the single inhalation technic described, this study can be comfortably done even when the patient is dyspneic. It is a safe, reliable, and technically feasible study in a nuclear medicine department with a scintillation camera. •

ACKNOWLEDGEMENTS

We are indebted to Mr. Gordon Kenney, MS, physicist, for equipment design and analysis, to Mrs. Linda Hansen, chief technician in nuclear medicine, for the excellent technical knowledge and assistance, to Mr. Ben Summers for photographic display, and to Susie Rayner for medical illustrations.

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Abdominal pregnancy

Emphasis on management of the placenta

Robert W. Ludwick, MD, Sterling, Colorado

Proper care of the placenta can do much to alleviate morbidity and mortality in management of this rare obstetrical event.

ABDOMINAL PREGNANCY is a rare and dangerous obsetrical complication. The incidence of 1:16,000 to 1:3,000 with an average of one in approximately 7,000 deliveries substantiates the rarity. As with most rare complications of pregnancy, the historical background of abdominal pregnancy has been well reviewed. Henderson and Wilson[1] point out that the earliest description of advanced abdominal pregnancy was recorded nearly 1,000 years ago by Albucasis, a surgeon of the Arabic era of medicine; and the first recorded case of operative delivery with survival of mother and baby was accomplished by a swine-gelder in Switzerland in the year 1500.

The term abdominal pregnancy implies pregnancy within the perintoneal cavity and excludes tubal, ovarian, and intraligamentous pregnancies. In most instances, abdominal pregnancy is caused by early abortion or rupture of tubal pregnancy with secondary implantation on peritoneal surfaces. Rarely, as in this case, does the primary pregnancy result from fertilization of the ovum within the peritoneal cavity.

CASE HISTORY

A 25-year-old Caucasian, nulliparous, was first seen on May 7, 1971, complaining of onset of severe lower abdominal pain approximately one and a half hours before. Further questioning revealed that her last menstrual date was December 20, 1970 and that she had never received any medical care nor had any abdominal complaints until this time. There was also no complaint of vaginal spotting or bleeding. She had had right salpingectomy and oophorectomy in 1966 and intestinal obstruction with lysis of adhesians in 1967.

Abdominal and pelvic examination revealed some mild lower abdominal tenderness, and a four-to-five month uterine enlargement was found with bi-manual maneuver. Hemoglobin was 13.1 gms/100 ml. and hematocrit 38 per cent. WBC was 17,100 with a normal differential. Urinalysis was normal.

The patient was admitted to the hospital with a diagnosis of possible threatened abortion and the usual supportive care and orders were given. Approximately five hours after admission the obstetrical nurse called, stating that the patient's condition was serious, that her pulse was rapid and weak, and that the blood pressure could not be obtained. The patient was seen and immediate surgery was ordered.

At operation the patient's condition was critical and four units of blood were rapidly infused. The abdomen revealed approximately 600-800 cc's of clotted and liquid blood. After some of the blood had been removed and the patient's condition had been stabilized, the uterus and adnexa were exposed and a four- to four-and-a-half-month-old fetus contained within the membranes was removed from the abdomen. The placenta had spontaneously broken away from an area on the right side of the fundus, and the site was bleeding profusely. It was quickly examined for any uterine rupture, but none was found. The right tube and ovary were also absent. The bleeding uterine area was oversewn with ooo chromic suture, and evacuation of all of the blood accomplished. The operative procedure was terminated in the usual manner.

The patient had a good and uneventful postoperative course and was dismissed on the seventh postoperative day.

Discussion

Primary abdominocyesis is an extremely rare entity and its definition should be confined to abdominal pregnancy within the peritoneal cavity. It is also an extremely dangerous condition if the operating surgeon is not aware of the importance of proper management of the placenta.

At the time of delivery, management of the placenta is determined largely by the feasibility of its easy and complete removal. Complete removal is reported accomplished in 71 per cent of those patients reaching the third trimester. Lathrop et al.[2] emphasized the importance of being able to ligate all tributary arteries prior to removal of the placenta in order to control hemorrhage. The alternative to complete removal of the placenta is the avoidance of disturbing the implantation site in order to minimize the chances of partial separation and uncontrollable hemorrhage. This method of management requires postpartum absorption of the placenta and operative removal at a later date.

Maternal mortality does not appear to be affected by the choice of method for management of the placenta if properly executed, but maternal morbidity is considerably greater when the placenta is left in situ. It is recommended that a period of at least nine weeks elapse after delivery before a second laparotomy is performed for placental removal in order to allow for reduction of placental vascularity.

St. Clair et al.[3] reported the use of Methotrexate in a patient with an abdominal pregnancy delivered by laparotomy in which the placenta was not disturbed, the theory being that since Methotrexate has been used to destroy tropoblastic tissue, it would be beneficial in shortening the life of the placenta. These authors used the Methotrexate by catheterization of the umbilical arteries and postoperative perfusion of the placenta through these catheters.

"Actually, the diagnosis of abdominocyesis is not difficult if only it is considered. Certain factors are highly suggestive. Unusual abdominal pain, distinctively palpable fetal parts, history of abdominal vaginal bleeding early in pregnancy, abnormal lie of fetus, and painful fetal movement are all frequent findings. A high or displaced cervix is said to be a frequent finding although this was not documented in any of our patients," state Foster and Moore.[4]

The physiologic mechanism of the conception of this reported abdominal pregnancy is extremely interesting. The unique finding was the implantation of the nidus on the right side of the uterine fundus, the side where the previous salpingectomy and oophorectomy had been performed. There was no evidence of rupture of the uterus to suggest a prior intrauterine pregnancy.

Summary

Abdominal pregnancy is a rare obstetrical complication. A case report has been presented. The importance of management of the placenta in the surgical care of abdominal pregnancy has been emphasized. Knowledge regarding the placental care can spare the patient much morbidity and perhaps her life. As Fitzgerald and Goldthrop[5] stated, "the method of dealing with the placenta is the crux of the discussion." •

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Comprehensive health care: The professions join forces

John C. Faul, MD, Michael A. Solomon, DSW, and Philip Madonna, ACSW, Denver, Colorado*

An alternative to the traditional dichotimization of delivery of mental and medical health care is explored. Psychotherapy is provided in the physician's office—a familiar, practical, and economical setting for the patient.

IT HAS LONG BEEN THE tradition in the delivery of health care services to dichotomize the provision of mental health services and general medical services. Practitioners of general medicine have for the most part avoided the treatment of psychological and/or emotional difficulties in their patients. Their patients are either referred for psychiatric care or maintained on drugs which often result in some form of symptom removal infrequently related to the etiology of the symptoms. The reasons for this method of functioning are many. They include considerations of time, money, individual competence, and the overwhelming demands upon the physicians by large practices.

However, it appears that the relationship between the family physician and his patient is a natural vehicle through which the mental health needs of patients may also be treated. The use of this resource in the provision of comprehensive health care is seriously limited. The purpose of this study was to explore an alternative to the traditional dichotomized delivery of mental and medical health care. The alternative was conceptualized as a team of health professionals, in this instance a social worker, assigned to a private general practice office.

*Dr. Faul is a resident in psychiatry, University of Colorado Medical Center; Dr. Solomon is assistant professor and director of Psychiatric Social Service at the University of Colorado Medical Center; and Mr. Madonna is a psychiatric social worker at the Fort Logan Mental Health Center in Denver, Colorado.

The general practitioners' relationships to patients are ones which are likely to generate feelings of trust and dependency. It is believed that these relationships will often be viewed by the patients as a positive resource when emotional problems begin to surface. Due to the ongoing and often stabilized nature of the doctor-patient relationship, it provides a good context in which help around emotional problems can be given and/or referral for more specialized help made. The following concepts were thus hypothesized: (1) The psychiatric social worker would be a convenient resource to be used by the physician in order to get consultation and/or assistance in treating the emotionally disturbed patient. (2) The team concept would provide the patient with comprehensive care available in the context of the familiar setting which he already views as a resource in time of need at a price he can afford. (3) The patient's often stereotyped attitudes towards the help of a mental health professional would be minimized by providing psychotherapy in his own physician's office. (4) The team approach would provide counseling services quickly on a crisis-oriented basis.

Methodology

This study was implemented in the setting of a suburban, general medical practice office for a period of six months. The patient population tended to be middle to lower middle class. A group of three physicians and their patients participated in the study. The average age of the physicians and the majority of their patients was around 40 years.

Prior to the implementation of actual psychiatric service to patients, a survey of the physicians' case loads was done to determine

the number of patients they felt were in need of counseling. Prior to referral the physicians discussed the recommended referral with the patient. The patient then made the appointment with the office secretary in a way identical to the procedure used to make an appointment with the physician. Only patients referred by the physicians were seen by the counselor. As the plan called for only a part-time counselor it was often necessary for the patient to return to the office for a late afternoon or evening appointment with him. To fit in with the usual operation of the economics of the office, interviews with the counselor were charged for on a $4.00 per 15 minute time segment.

An attempt was made to have the physician complete a referral form on each patient with whom he discussed referral, whether the patient accepted the referral or not. However, this was not accomplished and all referrals were made informally by discussing the referral with the social worker. Consequently, we were unable to determine the number of patients that declined referral, but it appears that very few declined.

Following the termination of our study, a questionnaire was mailed to the patients asking them to evaluate the service.

Findings

A total of 17 patients were referred to the psychiatric social worker. One patient failed to keep his appointment. Sixteen patients were seen by the social worker. These 16 were found to be suffering from various situational reactions, mild neuroses, and personality disorders. The majority of these were dealt with in the physician's office. Only one patient was referred to a psychiatrist after having been seen for seven sessions. She elected not to pursue further therapy after her initial evaluation by the psychiatrist. She later responded, via the final survey, that she could have used a longer period of therapy in her physician's office. Two patients were referred to one of the local mental health inpatient services. One was referred to a local outpatient mental health clinic.

There seemed to be some discrepancies between the physicians' opinion of the number of patients in need of psychotherapy prior to the availability of the service as compared to the actual referral rate when the service became available in their office. In the survey, prior to the study, the physicians indicated that about eight per cent of their patients were in need of and could benefit from psychotherapy. However, with the commencement of the study, they referred only 0.2 per cent of their patient load. This seems to indicate the difficulty the physicians still have in referring patients for psychotherapy. When referral was made, the physicians abdicated themselves from any further responsibility in treatment of the patient's emotional illness.

Our findings also indicate that the physician does not feel that he has anything to offer by his own counseling services. This was demonstrated by his charging only an office call fee irrespective of the amount of time he spent in counseling with the patient. Frequently patients were seen for periods of time equal to that allotted for three office calls but only charged a fee equivalent to one office call. Unless he can offer some physical ministrations, the physician does not feel he is deserving of a fee in proportion to his time. Consequently, virtually every patient that has emotional difficulties, particularly if he is anxious or depressed, is treated with medication.

The findings seem to confirm our hypothesis that the general practitioner has a unique relationship of trust and confidence with his patients. That he is viewed as a resource when emotional problems begin to surface is exemplified by the patient's high rate of acceptance of psychotherapy when it is provided in the physician's office. The fact that help was provided at a price the patient could afford must also have had some effect, as none declined because of the cost.

The value of the comprehensive care as provided in this setting appears to be confirmed by the fact that only four of the 16 patients needed services which could not be provided in the office of their physician. Further, our findings of the high rate of acceptance of counseling service by the patient (16 out of 17 referrals) indicate that the stereotyped attitude towards mental health personnel is less of a problem in the setting of the physician's office. Finally, the value of

crisis oriented therapy was demonstrated by the fact that most patients received sufficient relief to terminate therapy in less than seven sessions. Only two, including the one referred to above, indicated that they could have used more therapy.

On the follow-up survey of the 16 patients that utilized the counseling service only 11 responded. These respondents unanimously indicated that it was easier to utilize counseling in their physician's office than it would have been to get it elsewhere and all felt the service should be continued. The majority said they had received help but they would not have gone elsewhere for therapy. The response was universally warm and positive towards the service. The patients on the whole interpret referral to the counselor as a sign of their physician's concern rather than his rejection.

Discussion

Little effort has been made to provide psychiatric care for the middle class private patient who can't afford the expensive, long-term traditional type of psychotherapy but is not willing to be identified with the public mental health clinic. Consequently, he is deprived of the opportunity to receive psychiatric assistance when he is experiencing an emotional crisis. We believe the team approach as here described is one possible way to close this gap and bring the two poles of mental health care and medical care together under the supervision and coordination of the primary physician—under one roof, so to speak. As already noted, the primary physician is in a unique position to do so because of the strong alliance of trust between the patient and himself.

The literature reporting studies of this type of alternative health care in the United States is practically nonexistent. However, investigators in Australia and England have explored this type of comprehensive health care. Courtenay, Dawe, and Stern[1] motivated by their guilt around not adequately handling the emotional problems of their patients and by their insecurity around their competence to handle such matters, engaged a psychiatric social worker to practice with them. In a similar study by Goldberg, Neill, and Speak,[2] the effectiveness of the social worker as a diagnostician, as a coordinator of social services, and finally as a therapist was reported; they found their patients eager and motivated in their contacts with the social worker; their experience was, for the most part, short-term crisis-oriented intervention. Ogilive[3] comments that with the changing social and medical scene the scope and role of social workers in medical general practice may need to be reconsidered. In her opinion, there remains a firm case for consistent teamwork between doctors and social workers in the field of clinical medicine to further preserve and promote human well being.

In a study of 2,460 persons, Terhune[4] notes that the overwhelming majority of patients seeking help for emotional problems made use of already existing non-psychiatric relationships. Many of these patients sought help from their general practitioners. However, the present shortage of general physicians with the increasing pressure to treat more patients with somatic problems does not lend itself to the practice of psychotherapy even if the physician has the interest and skill to do so. His primary commitment and expertise is in the treatment of somatic illness and consequently, under the pressure of time, will concentrate on the same and often ends up doing psychotherapy by default rather than desire.

The trend towards increased utilization of paramedical personnel occurring in medicine generally is not occurring in the area of psychotherapy for the middle class private patient. On the basis of information gathered from our study it would seem this may have something to do with the physician's discomfort in dealing with his own emotions let alone those of the patient. Psychiatry is still suspect by many physicians. Bartemeier[5] states that medical men find it difficult to think and feel about psychiatrists as they do about other physicians. Psychiatry appears to them strange, unfamiliar, and unlike other medical specialties. Consequently, the two types of medical care—somatic and psychological—remain polarized.

We believe our study offers one possible solution to this dilemma. We believe it makes

good use of the trend towards the utilization of paramedical personnel. It would seem that the social worker is well suited in his training for the type of therapy Taylor[6] describes as the most useful in the general physician's office. The utilization of paramedical personnel could provide psychotherapy for people who are not receiving it now at a lesser cost than either the general physician or the psychiatrist could provide. The psychiatrist could then function as a catalyst whose responsibility it would be to facilitate effective relationships between psychiatry and general medicine. He could do so by acting as a consultant to the team and becoming involved at the primary physician level and in this way dispel much of the suspicion of psychiatry.

Although ours was only a small pilot study, involving just one group of physicians and one social worker, it does point to some interesting potential possibilities. Before any valid conclusions can be drawn, much more extensive and longer studies must be done. If our findings are confirmed by more extensive studies, an entirely untapped resource for more adequate comprehensive care for the whole patient has perhaps been uncovered.

Summary

An alternative to the traditional dichotomization of mental and medical health care delivery was explored, and a study of the team concept of medical care was made. Psychotherapy was provided in the setting of the physicians' offices by a psychiatric social worker. The patients readily utilized the psychotherapy provided in this setting, interpreting referral as a sign of their physician's concern, rather than rejection. It appears the physician has more difficulty accepting and fully utilizing the counselor as a member of the team than does the patient. This study has far-reaching implications for medical education, the private practice of general medicine, and the traditional provision of psychiatric treatment. •

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Perforation of the uterus by intrauterine devices

A. M. Rosen, MD, Ashley Pond, MD, and William Kilgore, MD, Taos, New Mexico

A REVIEW OF THE literature on perforation of the uterus by intrauterine contraceptive devices conducted with the aid of the University of New Mexico Medical School Library revealed a few cases reported in 1969 and 1970. Our practice is in a small town where IUD's are not frequently used because of the Catholic population. Because we found four cases of perforation within a period of approximately two months, we decided they were worth reporting.

Two of the perforations occurred in young nulliparous females, who were asymptomatic. They had Lippés Loops. In each case, the Lippés Loop tip had perforated the uterus posteriorly without clinical evidence of peritonitis. Both of these women had decided to have a tubal ligation, and after entering the abdomen for the ligation, the perforations were discovered, the Loops were removed, and no serious sequelae developed.

Two cases with complete perforation of the IUD, and entrance of the device (Dalkon Shield) into the abdominal cavity are reported as follows: (1) C. P. noted that the string of her Dalkon Shield was no longer visible. During our office examination, we were unable to see or feel the string connected with this shield. An abdominal film, and then a hysterogram, revealed that the Dalkon Shield had completely perforated the uterus and was somewhere within the abdominal cavity. For this reason, a laparatomy was performed; the Dalkon Shield was found enmeshed in the omentum. It had perforated without symptoms. There was no evidence of peritonitis. The perforation of the uterus posteriorly had sealed over completely and cleanly. There were no adhesions. The Dalkon Shield was removed uneventfully. (2) L. T. also had a Dalkon Shield inserted, and because of the missed period was seen in our office where it was determined that the string was no longer visible. Also, this patient was six weeks pregnant clinically. A tubal ligation and dilation and curettage was decided upon with removal of the shield and interruption of the pregnancy. We found to our surprise that the Dalkon Shield had perforated completely into the abdominal cavity and had enmeshed itself within the sero-muscular coat of the ileum. It was removed without difficulty, but subsequently the patient developed a perforation at the site of the removal of the Dalkon Shield from the intestinal wall, and gram-negative sepsis and shock. She responded to vigorous treatment with antibiotics and corticosteroids, and required no other therapy. However, she did have a stormy course and recovered slowly.

Since this article was submitted, two additional instances of perforation have been encountered. One was the case of a 25-year-old female para two, who had been using a Lippés Loop IUD for one and a half years. Three days prior to admission to this hospital while on a transcontinental trip, she developed pelvic pain and stopped off at an outpatient clinic in Indiana, where she asked to have the IUD removed. The IUD was removed without x-ray being taken, and the patient suddenly became much more severely ill. She was brought to our hospital 48 hours later in typical gram negative septicemia and shock, was operated on an emergency basis where she was found to have a peritoneal cavity full of pus. There was an obvious perforation of the uterus posteriorly on the left

side. The Loop had also perforated the sigmoid colon at its junction with the rectum, resulting in a very large amount of spillage of colonic contents, and the resultant infection and shock. The wounds were closed, the patient was drained, and she was placed on massive doses of steroids and antibiotics to which she responded. I feel this additional case, even more than the previously reported cases, points out the potentially severe danger of the use of IUD's.

The other instance occurred in a 22-year-old female who developed severe endometritis and mild peritonitis following perforation of a Lippés Loop through the left posterior portion of the uterus. She was treated with antibiotic therapy and made an uneventful recovery. Her Loop was removed through the vagina.

Summary

Judging by these six cases, perforation of the uterus by intrauterine devices probably occurs much more frequently than is known or is reported in the literature. It does occur painlessly and usually produces no symptoms. It is advisable, despite limited information, to consider the possibility of silent perforation of the uterus in differential diagnosis. Under the circumstances, it would be advisable to have all women who do use the intrauterine device check the presence of the string themselves at least weekly, and if the string cannot be located, it should be determined if the device is still within the uterus or has perforated through the uterine wall into the abdominal cavity. •

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Botulism: Clinical and therapeutic observations*

Michael Cherington, MD, Denver, Colorado

Botulism is a paralyzing disease caused by one of the most potent of toxins.[1] The toxin is produced by an anaerobic organism, Clostridium botulinum. The discovery of the toxin was made by Van Ermengem (Fig. 1) just before the turn of the century.[2,3] An epidemic of botulism in the small Belgian town of Ellezelles (Fig. 2) in 1895 provided the opportunity for his discovery. The disease occurred among members of a music festival who ate raw ham. Professor Ermengem isolated an anaerobic organism from the ham and then produced the disease in laboratory animals by injecting the toxin produced by the organism.

Fig. 1. Professor Emile Van Ermengem (1851-1932) of University of Ghent.

*From the Division of Neurology, University of Colorado Medical Center, Denver, Colorado. Supported in part by Public Health Service Grant PR-05357.

Most cases of botulism have resulted from the ingestion of spoiled protein-containing foods (meat, cheese, beans). Symptoms begin in 12 to 36 hours and often consist of diplopia, dysphagia, and weakness. Pharyngeal, laryngeal, and limb muscle paralysis are usual. Death frequently occurs as a result of respiratory paralysis.

Colorado ranked third in the United States in total attacks of botulism for the past 70 years.[4] This is surprising for a state that has a small population (29th out of 50 according to the 1970 census). In the past 20 years eight epidemics of botulism (20 patients) have been seen at this center.

The clinical features of the cases are summarized in Table 1. More than half of these cases were seen by the author (epidemics A—D). In addition to the patients listed in the Table, five other people were involved in the epidemics, but they died before arriving at hospital.

Fig. 2. The town of Ellezelles today. This quiet town in Belgium was site of Botulism epidemic in 1895.

TABLE 1

Epidemic Number & Year	Case Number	Age	Sex	Neurological Involvement	Pupils	Response to Guanidine Hydrochloride	Response to Edrophonium Chloride	Canned Food	Type	Anti-Toxin	Outcome
A 1969	1	41	M	Dysphagia, diplopia, quadriparesis, required respirator assistance	N	None	No	——	B	AB	Expired
B 1969	2	39	M	Dysphagia, diplopia, ptosis, dysarthria	N	Mild improvement. With placebo, no improvement	Yes	Potato Salad	A	——	Recovered
	3	40	M	Diplopia, neck weakness, ptosis, dysarthria	N	Slight improvement	Yes	"	A	——	"
	4	39	M	Dysphagia, diplopia, unable to protrude tongue	N	Able to swallow at 500 mg q6 hr. Dysphagia returned when guanidine discontinued	No	"	A	——	"
	5	42	F	Blurring of vision, mild proximal muscle weakness, dyspnea	N	Improvement in vital capacity from 1.2 liters to 3.2 liters with 600 mg q6 hr.	No	"	A	——	"
	6	48	F	Quadriplegic, total external ophthalmoplegia, required respirator	N	Moderate response of respiratory muscles. More marked response in limb and eye	No	"	A	AB	"
	7	52	M	Quadriplegic, total external ophthalmoplegia, required respirator	Lost pupillary response after 3 weeks	Fair-improvement in eye muscles, in tongue movement	No	"	A	AB	"
C 1967	8	57	F	Diplopia, quadriparesis, required respirator assistance	N	Transient improvement in eye and limb movement	No	Beans	——	——	Expired
D 1963	9	17	M	Diplopia, dizzy	Sluggish	————	——	Pickles	A	AB	Recovered
	10	18	F	Lethargy, diplopia, nystagmus	N	————	——	"	A	——	"
	11	16	F	Dysphagia, limb weakness	N	————	——	"	A	——	"
	12	17	F	Ptosis, limb weakness, dysarthria diplopia, respirator assistance	N	————	——	"	A	AB	"
E 1959	13	42	F	Diplopia, respiratory distress, generalized muscle weakness. Tank respirator for 2 months	N	————	No	Beans	——	——	Recovered
F 1956	14	10	M	Dizzy, diplopia, dysphagia	N	————	——	Beet Greens	——	AB	Recovered
	15	34	F	Diplopia, dysarthria	N	————	——	"	——	AB	"
	16	3	F	Ptosis, dysarthria	N	————	——	"	——	AB	"
	17	5	F	Dizzy, dysphagia, mild weakness	N	————	——	"	——	AB	"
	18	15	F	Dysarthria, dysphagia, nystagmus	N	————	——	"	——	AB	"
G 1954	19	21	F	Generalized muscle weakness, diplopia, ptosis, required respiratory assistance	N	————	——	Asparagus	——	AB	Expired in 3 days
H 1953	20	50	F	Required respiratory assistance, ptosis, generalized weakness	——	————	——	Beets	——	——	Expired in 1 month

Case Material

The patients seen are described in Table 1. Patients in epidemics A, B, and C have been discussed in earlier reports. All of them were treated with guanidine hydrochloride. Seven responded to varying degrees to guanidine.[5,6,7] One did not improve on guanidine.[8] Patients in the earlier epidemics have not been reported on previously and were not treated with guanidine. In the family described in epidemic F, seven people ate the contaminated beet tops. A nine-year-old girl died 52 hours later and was not seen at hospital. Two children did not become sick after eating contaminated food. The food was thrown to chickens, and seven of the twelve chickens died in 36 hours. Epidemic D concerns seven high school students who ate pickles in a restaurant in Kansas. One died before reaching the hospital in Denver. Two students who did not eat pickles remained well. The husband of the patient described in epidemic G died in another hospital four days after his symptoms began. In epidemic H two other persons died after eating the same contaminated food.

The clinical data here contains some interesting features. Perhaps the most interesting is the fact that normal pupils were present initially and in the early parts of the course in all but two patients. This is a surprising finding when one considers the literature that suggests pupillary abnormalities are an early sign. This experience indicates pupillary abnormalities are not an essential criterion for the diagnosis of botulism. Another clinical feature which is not commonly seen in botulism is pathologic fatigability which is a hallmark of myasthenia gravis. This was seen in two of the patients. Both patients showed a definite increase in muscle strength and disappearance of ptosis when treated with intravenous Edrophonium Chloride. However, anticholinesterase drugs had no effect in other cases including the most severely affected patients.

Of the 25 patients involved, nine died. Of the epidemics seen since 1960 only one was not studied for mouse-killing power of serum. The other epidemics were Type A and one Type B. Cases studied before 1960 were not studied for mouse-killing power.

Treatment

The major form of treatment in the year 1972 still consists of good medical and nursing care. Antitoxin has failed to alter the course of many patients, mostly Type A cases. It is more effective in cases of Type E botulism.[9]

Recent human and animal experience with guanidine hydrochloride seems promising. Guanidine enhances the release of acetylcholine from nerve terminals. It has been shown to reverse the neuromuscular defect of the myasthenic syndrome of Lambert and Eaton. Because of the similarity in the electrophysiological abnormality seen in Lambert-Eaton syndrome and botulism, guanidine was tried in botulism. To date, it has been of benefit to varying degrees in 12 reported patients.[5,6,10] Cherington and Ginsberg reported the first case of guanidine failure in a patient who died with Type B botulism.[8] Faich et al. reported on four patients with Type A botulism, all of whom recovered but in whom guanidine had no beneficial effect.[11]

Guanidine may prove to be a useful therapeutic adjunct in some cases of botulism. However, it alone cannot reverse the block in severely poisoned patients. Such patients will require intensive medical and nursing care.

Another pharmacologic agent which has been shown recently to reverse the neuromuscular block of botulism in animals is germine monoacetate.[12,13] Rabbits poisoned with botulinum toxin demonstrated reversal of block when treated with germine. Since the action of guanidine is at a presynaptic site and that of germine is most likely postsynaptic, the combination of these drugs may provide a useful treatment for human cases of botulism.

Summary

This report describes 20 cases of botulism seen at the University of Colorado Medical Center in the past 20 years. Surprising, in light of older clinical impressions, is the fact that the pupils remained normal in almost all the patients reviewed. The report also deals with new therapeutic data. Recent data suggests that the combination of guanidine and germine might be useful in therapy. •

ACKNOWLEDGEMENT

Photograph of Professor Van Ermengem was kindly provided by Professor Emeritus J. Gillis of Ghent, Belgium.

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Observations on high altitude coal miners

Harvey W. Phelps, MD*, Pueblo, Colorado

There has been much controversy over determining disability of the coal miner, intensified by the "Black Lung Law". Most of the disability data is from the eastern part of the United States and does not deal with altitude. The fairness in disability rating in individuals working at higher altitudes is explored.

THE MINING OF COAL in the Rocky Mountain West has been an important industry since the 1870's. For the past 30 years the industry has been declining. Nearby large natural gas fields have almost completely eliminated coal as a fuel for home heating. The largest mines produce coal for metallurgical coke. There has been a new demand for western coal for power plants in the Middle West because of its characteristically low sulfur content. Many of the new mines are underground using heavy machinery.

This study involves 256 coal miners, selected at random, who never worked in hard rock mines. Most of them were still working. Almost all of them were evaluated prior to passage of the "Black Lung Law". A questionnaire was filled out by each as to his age, working area, length of work in the mines, smoking history, respiratory problems, and home environment. The questionnaire was set up for key punching.

All of the miners underwent a fairly complete lung function study. The studies consisted of spirometrics (before and after bronchodilators), residual volume (Helium decreasing volume), and arterial blood gases (before and after exercise). Because of the large number of evaluations being done by our laboratory (five or six a day) and the amount of time necessary to perform the exercise, we used the eight-inch step-up exercise for one minute. This test produced the same amount of drop in the arterial PO_2 as those done on the treadmill, and it was much easier to get the cooperation of the miner. It also made comparison studies in the field more meaningful.

All of the miners evaluated had a complete cardio-respiratory physical examination. We were interested in the contour of the chest wall, the position of the diaphragms, movement or lack of movement of the diaphragms, rales and wheezes, and the breath sounds. X-rays of the chest were taken on all and were interpreted using the UICC/Cincinnati Classification of Radiographic Appearances of Pneumoconiosis.

Results and Discussion

As suspected, most of the miners were older men, the average age being 54.3 years. Most had worked for many years in the mines, the average being 30.4 years. Most were moderate to heavy cigarette smokers. Of the 256 miners, 88 were non-smokers. Since the enactment of the Black Lung Law, it has been almost impossible to get an accurate smoking history, but since these studies were done prior to the law, we believe that the smoking history is fairly accurate.

The work history was most interesting. Many of the miners had done contract mining for many years, i.e., hand loading, and they were most reluctant to mention this work. When asked what type of work they did in the mines, they would list just the work connected with machinery. They had

*Dr. Phelps is director of Pulmonary Function Laboratories, St. Mary-Corwin and Parkview Episcopal Hospitals, Pueblo, Colorado.

to be pinned down specifically to admit that they had done contract work. At first we thought that running machinery had more prestige; however, we later became convinced that the greater quantity of dust produced by machinery was the reason they avoided admission of the less dusty contract work. Many individuals who hand-dug coal for many years and then worked outside the mine had very little disability. On the other hand, several miners who had worked for relatively short periods with the continuous miner (machinery) became markedly disabled. After enactment of the Black Lung Law, many older miners were upset with the fact that they worked for 40 or more years at hand-digging and received no disability, yet several who worked for only 20 years, but with machinery, received disability.

Most of our larger mines produce coal for metallurgical coke. There are thin seams of rock in with the coal. The continuous miner grinds up this rock along with the coal. Much of the support work in the mine is done by roof bolting. This consists of using a four- or five-foot long hollow drill to bore the hole in the roof. Vacuum is applied to the hollow drill, but a considerable amount of dust comes down on the outside of the drill. Most of the roof and floor of the mine is rock. It is not surprising that most of the disability is connected with the continuous miner and the roof bolter. Because the ceilings are five to 12 feet high, individuals such as helpers, electricians, mechanics, and others can be in the area as the continuous miner operates. Those individuals who work at the face around the continuous miner and the roof bolter are exposed to considerable coal and rock dust.

Physical examination of the miner who is short of breath rarely shows the typical increased A-P diameter of emphysema. The diaphagms are usually in normal position and are fixed. The individual is often plethoric and may be cyanotic. Breath sounds are usually normal, but there may be some wheezes. Many of the miners who are short of breath have marked edema of the ankles.

X-ray of the chest is difficult to interpret. Progressive massive fibrosis is often reported in the eastern coal miner, but it is most uncommon in the mountain states miner. For years it was assumed that coal miners in the mountain states do not develop disabling lung disease. There were a number of studies done on the high altitude hard rock miner, but few if any were done on the high altitude coal miner. I suspect this is due to the lack of x-ray evidence of progressive massive fibrosis (PMF). We have seen only six miners with PMF. Four of these had a questionable past history (two had a history of tuberculosis, two worked for a fire brick firm), and two seemed to have developed the disease in connection with coal mining. We have autopsy material on only one miner with the typical picture of PMF. According to the Summary of the Conclusions from an International Conference on Coal Workers' Pneumoconiosis,[1] ten per cent of coal miners in the Appalachian region had pneumoconiosis, and of these 30 per cent had PMF. This is certainly not the situation in the Rocky Mountain states.

The x-ray picture in many, if not most, of miners in the mountain states shows a fine diffuse infiltrate. This infiltrate is usually linear and rarely nodular. If nodular infiltrates are present, they look like very early miliary tuberculosis. The x-ray is usually read out by a radiologist as an increase in broncho-vascular markings. When we go over the lung function studies, the chest x-ray becomes more noticeably abnormal. Almost all of our UICC Category 2 miners are markedly disabled. This disease pattern goes along well with those reported by Rasmussen et al.[2]

The spirometrics were found to be almost totally worthless in evaluating disability or in making a diagnosis of pneumoconiosis. Almost all of the miners had normal vital capacities. The flow rates were usually near normal, except in a few who were wheezing and had a long cigarette smoking history. The MBC (maximum breathing capacity) is usually normal. One would expect this in a group of hard-working men. The non-smoker

group with severe hypoxia and cor pulmonale almost always has normal spirometrics.

In our study, the arterial blood gases are the major criteria in evaluating disability. Evaluations are complicated by the fact that most of the medical centers are located at an altitude lower than either the homes or the working areas of the miners. Pueblo, Colorado has an altitude of 4,600 feet with an average barometic pressure of 640 mm Mercury. The average arterial PO_2 is 75 to 80 mm Hg and the average PCO_2 is 33 to 35 mm Hg, the pH being around 7.40. Many of the miners evaluated live in Trinidad, Colorado, with an altitude of 6,000 feet, and the mines usually at an altitude of 7,000 to 8,000 feet. At these altitudes there is a corresponding decrease in both PO_2 and PCO_2 (Table 1). The decrease in the PCO_2 in the miner is more than one would expect because he hyperventilates at these altitudes.

TABLE 1

Normal Values of Blood Gas Related to Altitude

Normal Arterial PO_2 in Pueblo (4,600′ altitude)	75 to 80 mm Hg
Normal Arterial PCO_2 in Pueblo	33 to 35 mm Hg
Normal Arterial PO_2 in Trinidad (6,000′ altitude)	69 to 74 mm Hg
Normal Arterial PCO_2 in Trinidad	29 to 32 mm Hg

We measured a group of miners in both Pueblo and Trinidad along with some healthy non-miners. There were some miners who had a little better PO_2 in Trinidad, which was somewhat surprising, but usually there was a decrease in the PCO_2. None of the miners evaluated in both places were normal. The most valuable test was the arterial PO_2 after exercise. Even if the x-ray was normal and the resting arterial blood gases were normal, the PO_2 would drop on exercise. This test correlated well with a history of increasing fatigue.

Our studies tend to indicate that the saturations used by the disability standards established by Social Security are probably not applicable here in the mountain states. The saturations are based on using the PO_2 and the pH and then using the oxyhemoglobin dissociation curve. As we have demonstarted, most of these individuals have a reduced PCO_2 because of the altitude and the fact that they are hyperventilating. These individuals therefore have essentially normal pH which has become compensated, but with a reduced CO_2 one is concerned whether the oxyhemoglobin association curve has been shifted. A number of studies indicate that the oxyhemoglobin dissociation curve is affected not only by the pH but also by the PCO_2 and carbon monoxide. It is felt that more studies should be done on changes on the PCO_2 and its effect on the oxyhemoglobin dissociation curve.

We have developed a keen interest in the residual volume (Table 2). Almost all miners in this area have a reduced residual volume. If a miner was a heavy cigarette smoker, his residual volume would be considerably under a non-miner cigarette smoker. The real value of the residual volume is in the non-cigarette-smoking miner, especially a continuous miner operator or a roof bolter. In these individuals the residual volume is almost always low. Individuals with low residual volumes (under-predicted) are rarely seen in a non-mining population, as low residual volumes usually occur only in some type of pulmonary fibrosis or in a volume-reducing disease such as a lymphangietic spread of a carcinoma. It would appear that the residual volume is of great help in making a diagnosis of pneumoconiosis. It is helpful in making the diagnosis but not in determining disability.

TABLE 2

Comparison of Average Residual Volumes of Coal Miners Related to Type of Work and to Cigarette Smoking.

Type of Work*	1 Continuous Miner	2 Shuttle Car	3 Wall Cutter	4 Hand Load	5 Roof Bolter	6 Other Work
Average Age (Years)	50.2	51.2	51.2	56.0	51.6	56.7
Average Total Years in Mines	26.0	25.6	25.6	34.0	28.0	31.9
Average Years at This Work	9.6	13.7	13.7	16.8	13.4	20.4
Average Pack Years (Cigarette Smokers)	19.1	24.8	20.9	25.6	25.0	26.2
Number with Significant X-ray Changes (UICC)	12(27)	9(26)	8(25)	18(55)	13(34)	19(73)
Average Residual Volume of Non-Smokers (Per Cent of Predicted)	88	91	88	99	89	110.7
Average Residual Volume of Smokers (Per Cent of Predicted)	142	110	116	108	141	131.6
Average Residual Volume of Non-Smokers with X-ray Changes (Per Cent of Predicted)	88	54	84	119	88	no subject
Average Residual Volume of Smokers with X-ray Changes (Per Cent of Predicted)	138	104	116	116	123	126.6

*Type of Work, Explanation of Categories.
1. Continuous Miner Operators — 27 Studied.
2. Shuttle Car Operators — 26 Studied.
3. Short Wall Cutter Operators — 25 Studied.
4. Hand Load Coal Miners — 55 Studied.
5. Roof Bolters — 34 Studied.
6. Other Company Workers (Timbermen, Mechanics, Nippers, Helpers, etc.) — 73 Studied.

The same is true for the chest x-ray. A miner working at the face who has a low residual volume, low PO_2, and low PCO_2 must have some kind of fibrosis regardless of what the x-ray shows. Since we see this so often in the coal miner and so rarely in the non-mining population, we have to assume that these changes must be connected with coal mining. There is reason to doubt the "standard" x-ray technic. We have seen many miners with abnormal gases and low residual volume and a "normal" x-ray. A repeat x-ray, shot lighter, will show the small nodular lesions and the linear markings of pneumoconiosis. We have two autopsies to back this contention but obviously need more material to prove it.

By far the most complicating factor in evaluating the effects of coal mining on the coal miner is cigarette smoking. The average overall amount of smoking among the cigarette smokers is 25.7 pack years. Cigarette smoking increases the disability as well as brings on earlier development of symptoms. Unless the non-smoking coal miner is adequately evaluated, it will never be possible to adequately evaluate pneumoconiosis (Table 3).

TABLE 3

Arterial Blood Gases (PO_2 and PCO_2) in millimeters of Mercury of 256 Coal Miners. Effect of Cigarette Smoking.

Average PO_2 without Chest x-ray Changes (UICC) mm Hg	70.1
Average PO_2 with x-ray Changes	66.4
Average PO_2 after Exercise (8" Step-Up) without x-ray Changes	66.0
Average PO_2 after Exercise with x-ray Changes	63.2
Average PO_2 (Non-Smoker) with x-ray Changes	68.1
Average PO_2 (Cigarette Smoker) with x-ray Changes	66.3
Average PCO_2 without x-ray Changes	35.4
Average PCO_2 with x-ray Changes	33.6
Average PCO_2 with x-ray Changes (Non-Smoker)	32.1
Average PCO_2 with x-ray Changes (Cigarette Smoker)	34.3

We question the methods of awarding disability under Social Security to coal miners living in the Rocky Mountain region. Many, if not all, of the studies are being done in cities at a considerably lower altitude than that in which the coal miner lives and works. His blood gases both on rest and exercise would be considerably better at the place where he is being evaluated than they would be where he lives and works. We are also concerned by the fact that many coal miners who are in their late fifties and are unable to continue working in the mines are being denied benefits under Social Security because they are told that they are not totally disabled. Most of these miners have worked 30 or more years in the coal mine and have limited education. It is an unreasonable burden on the taxpayer to expect these individuals to be trained for other types of work when the number of years remaining until they can draw their statutory Social Security benefits does not make retraining economically feasible. How can a coal miner who has worked 30 years in a mine and with limited education expect to find other type of work in a coal mining community such as Trinidad? The Social Security Law clearly states that in evaluating disability reasonable consideration should be made on the individual's educational background and his vocational background as to his re-employability. The coal miner has paid for a number of years into Social Security for benefits he is told will be his if he becomes disabled, and yet he is having the same rules applied to him as an individual who has considerably more education and a greater variety of working backgrounds for re-employment. Nationwide figures of re-employability on a coal miner who reaches age 55 is probably less than three per cent.

Summary

Pneumoconiosis does occur in coal miners of the Rocky Mountain states. Most of the disease is probably silicosis. Progressive massive fibrosis (we have one proven case) is relatively rare in these coal miners. The coal miner working at altitudes in excess of 6,000 feet develops severe hypoxia, polycythemia, and cor pulmonale with minimal radiographic changes. The coal miner who operates a continuous miner, roof bolts, operates a shuttle car, or does other work at the face has an increased exposure to dust. Perhaps the type of dust plus the high altitude is responsible for the presence of severe symptoms with less change in the x-ray of the chest than is reported in the eastern studies. The residual volume is especially helpful in diagnosing this complex disease, even in the heavy cigarette smoker. Arterial blood gases are the most valuable test for disability. The earliest sign of respiratory difficulty in the coal miner is a drop in the exercise arterial PO_2. This occurs long before there are any x-ray changes. The spirometrics are of no help in evaluating this disease. Evaluations made at lower altitudes than where the miner works or resides must take into account the difference in blood gases caused by the change in altitude. Most importantly, we contend that the methods of determining disability under Social Security which are based upon experience with coal miners in the eastern United States are not correct when applied to coal miners of the Rocky Mountain region. Also, for these miners the definition of total disability under Social Security is not realistic. •

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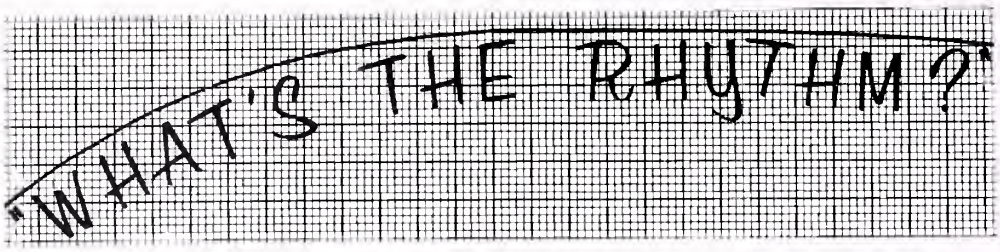


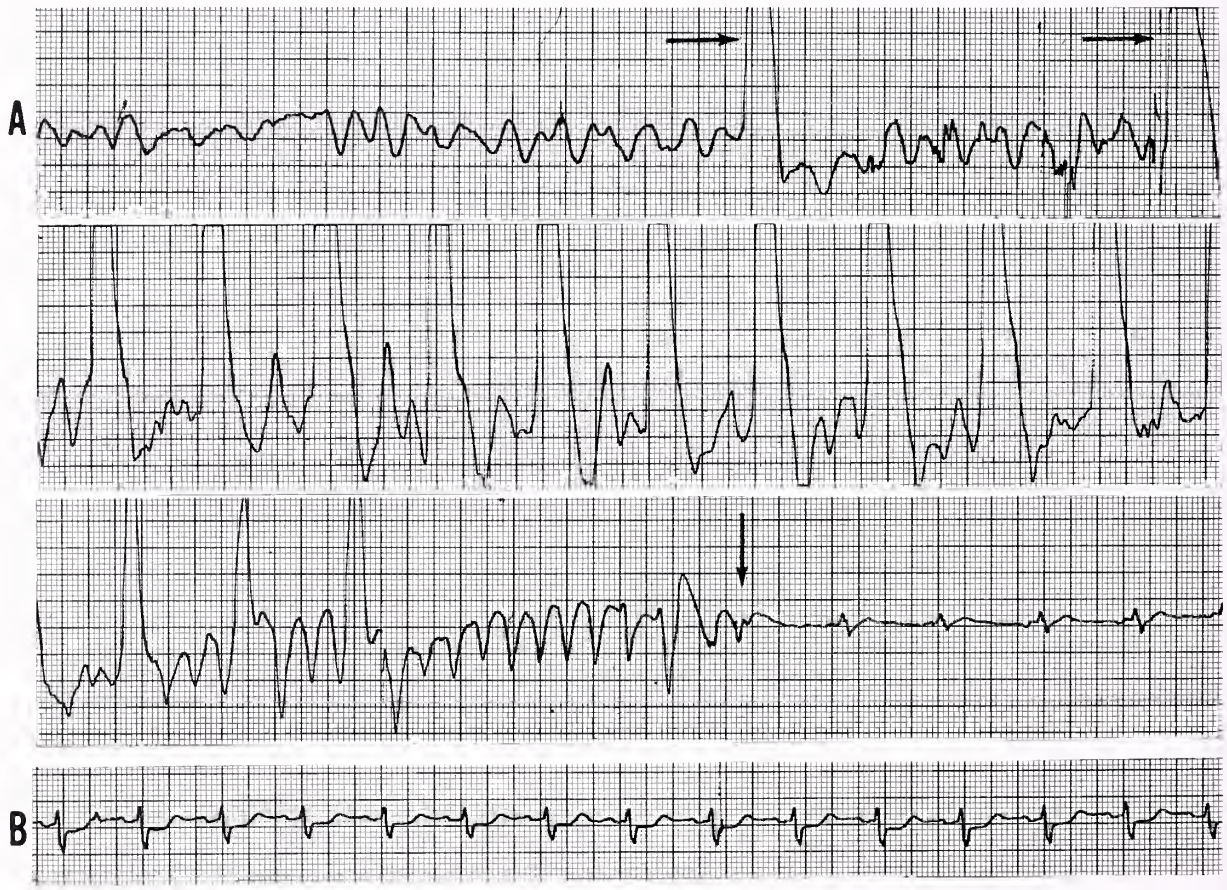
Prepared by Alan E. Lindsay, MD,* Salt Lake City, Utah

The Patient: A 55-year-old male was admitted at 7 a.m. with a two-hour history of anterior chest pain. ECG revealed anterior myocardial infarction, normal sinus rhythm, and normal IV and AV conduction. Oxygen was administered and meperidine, 100 mg., was given.

The Event: One hour after admission the patient suddenly became pulseless and cyanotic. Because several physicians were in the I.C.U. at the time, resuscitative measures were instituted within 30 seconds. Cardiac massage was begun immediately while ECG leads were applied.

The top strip in ECG "A" was obtained after about one minute of massage, which was then interrupted temporarily so that the rhythm could be observed. A coarse ventricular fibrillation was seen. Cardiac massage was resumed (the horizontal arrows indicate the massage artifacts) and carried on through the second and third strips of "A"—the three strips are continuous. Massage was then stopped again in the third strip and after a two-second run of better-organized ventricular activity at a rate of 300/minute ("ventricular flutter"), the fibrillation suddenly stopped spontaneously and a supraventricular mechanism assumed control. Five minutes later sinus tachycardia was still maintained without evidence of ventricular ectopy (ECG "B"). No lidocaine therapy or precordial shock had been given. His course thereafter was uncomplicated.

*Scientific Editor for Utah of the *Rocky Mountain Medical Journal.*



The Implication: Spontaneous termination of ventricular fibrillation is a rare event indeed, particularly in the acutely ischemic heart. It is remarkable that this chaotic asynchronous activity of the fibrillating myocardium, thought to be the result of fragmentation of the excitation wave because of abnormalities of conduction velocity and refractoriness,[1] could ever be reverted without drastic intervention. Precordial shock accomplishes reversion by total simultaneous depolarization of the entire myocardium, but the mechanism of spontaneous reversion is unknown.

Spontaneous termination of ventricular fibrillation, with or without cardiac massage, is reported only occasionally in the medical literature[2] but may be more frequent than we suppose. An important point to remember is that vigorous cardiac massage should always be carried out when cardiac arrest is caused by ventricular fibrillation even though a defibrillator is not immediately available. On occasion lives may be saved by this simple maneuver alone.

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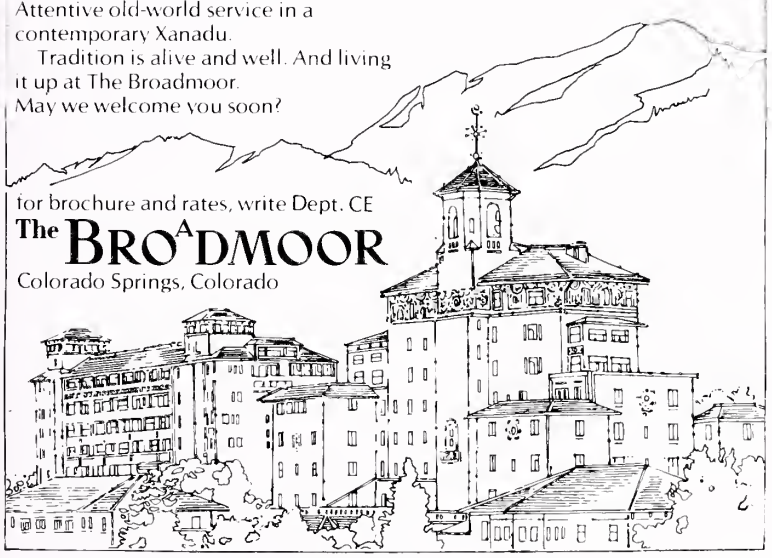

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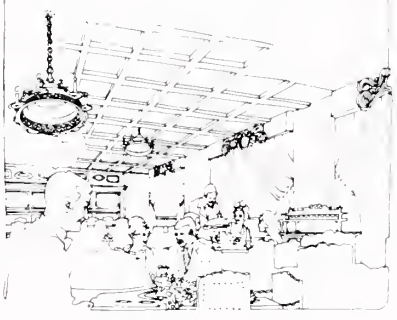

The irritable bowel*

John Scott, MD, Denver, Colorado

Functional bowel disease is not a diagnosis to be made by exclusion, and it may be successfully treated by a rational program.

FUNCTIONAL DISEASE of the gastrointestinal tract is one of the most common and frustrating entities encountered by the practicing physician. It is largely omitted in the curriculum of modern medical schools, and current textbooks of medicine give it relatively little space and very little emphasis. Consequently, by many new practitioners of medicine it is omitted in the differential diagnoses. Functional bowel disease is often considered as "a diagnosis of exclusion". We shall show that this consideration is not valid. Functional disease is a clinical diagnosis to be confirmed, and not to be made by the exclusion of organic disease as the etiology of the patient's symptoms. The diagnosis itself has been referred to as one "without any hope for rational treatment". We shall show that there is a rational and generally successful treatment program.

Functional gastrointestinal disease may manifest itself anywhere from the mouth to the anus. This paper will deal primarily with its manifestations in the small and large bowel.

Definition

Functional bowel disease results from a constant or intermittent autonomic imbalance resulting in abnormal motility and/or secretory functions of the bowel. In addition, vascular changes of dilatation and constriction have been described.[1]

*From the Presbyterian Medical Center, Denver, Colorado.

Incidence

Estimates on the incidence of functional bowel disease vary from 30 per cent to 70 per cent of all patients with digestive complaints, but 50 per cent would seem to be a reasonable figure. This figure may be considerably lower in view of the recent demonstration of lactase deficiency in a significant number of patients thought to have the irritable bowel syndrome.[2] The significance of lactase deficiency will be discussed in another section.

Most functional bowel problems have their onset during the third through fifth decades of life. It has been said that the onset of functional symptoms after the age of 60 should alert the physician to the likely presence of organic disease. About 60 per cent of patients are women, a statistic of little practical value.

TABLE 1
COMMON CAUSES OF IRRITABLE BOWEL

1. Laxative abuse.
2. Excessive intake of irritative foods.
3. Psychogenic.
4. Concomitant disease causing reflex dysfunction.
5. Preceding bacillary, amoebic dysentery, or viral gastroenteritis.
6. Drugs, especially "Mycin" drugs.
7. Excessive use of antacids, containing magnesia.
8. Preparation for x-rays (GB, IVP, BE).
9. Laparotomy with handling of intestines.

Etiology

The leading causes of the irritable bowel are listed in Table 1. Laxative abuse is extremely common. Many patients unknowingly steeped in the traditions of autointoxication, and reinforced by television advertising, associate good health with daily bowel

movements. They are unaware of the fact that a completely evacuated colon requires about three days to "reload". The result is frequently the daily use of cathartics or laxatives. Excessive intake of irritative foods is another leading cause of the irritable colon syndrome. These foods include primarily beer, coffee, orange juice, raw fruits and vegetables. Such foods result in altered intestinal motility. Increase in motility in the proximal large bowel associated with decreased motility in the sigmoid and rectal areas results in diarrhea. Increased motility in the rectosigmoid causes constipation.[4,5] Some authors give considerable import to the psychiatric aspect of the irritable colon and define the syndrome as a psychophysiologic concomitant of an affective disorder.[13] Clinically, however, psychogenic factors are usually associated with either laxative abuse, irritative foods, or both.

Emotional problems are common[4] but in general are related to everyday stresses and do not necessitate psychiatric consultation, although they may require the use of antidepressants on occasion. Concomitant disease may account for part, but not all, of the patient's symptom complex. The gall bladder, pancreas, and stomach are frequent offenders in this regard, and it has been said that gall bladder patients with proven organic disease and symptoms of functional disorder as well should be told preoperatively that surgery might not relieve all symptoms.[6] Bacillary or amoebic dysentery may result in the irritable bowel syndrome.[7] "Mycin" drugs have been reported to cause the syndrome.[8] Anti-acids containing magnesia may be the etiology,[9] an important point to remember when dealing with functional symptoms in patients with known peptic disease. X-ray preparations and manipulation of the intestines at surgery are also listed as etiologies of the syndrome, but these by themselves usually do not result in chronic illness.

Diagnosis

As with any disease, the history is perhaps the best diagnostic tool. A careful search for the etiologic factors listed above is mandatory, and this may require several interviews. For example, it may be some time before a patient feels comfortable enough with his physician to admit to daily enemas for over 25 years. A very important point in the history is to determine exactly what the patient thinks he has. As we shall see this has particular relevance to the treatment. Preceding surgery without significant relief of symptoms is another important clue and has been reported in about 20 per cent of patients with the irritable bowel syndrome.[9,10]

The symptoms of the syndrome are listed in Table 2, roughly in decreasing order of frequency. Abdominal pain or discomfort has been reported to occur in 85 per cent of patients.[12] Pain is often crampy in nature but may be described as sharp, aching or burning, and may mimic any organic abdominal disease. Characteristic of this pain, however, is its variable location over a period of time. Pain rarely awakens the patient at night and if it does, the pain occurs between 4 and 6 a.m. This is an important point if peptic disease is known or suspected since peptic pain usually occurs between 1 and 2 a.m. Also, pain of functional origin lacks the rhythmicity and periodicity of peptic pain and is often precipitated rather than relieved by food.

TABLE 2
SYMPTOMS OF FUNCTIONAL BOWEL DISEASE

1. Abdominal pain or discomfort.
2. Emotional instability.
3. Change in bowel habits, constipation or diarrhea.
4. Gaseousness; belching, bloating, flatus, aerophagia.
5. Systemic symptoms.
6. Mucous bowel movements.
7. Anorexia and nausea; rarely vomiting.
8. Heartburn.
9. Weight Loss.

Emotional problems are almost as common as pain.[4,13] Usually these are minor problems often manifest in the patient's affect and are more aggravating than causative. Occasionally major psychic trauma may precipitate symptoms. If treatment is to be successful, such trauma must be uncovered by a careful history.

Changes in bowel habits are frequently the most distressing symptoms, with diarrhea

being somewhat more common than constipation. Diarrhea may alternate with constipation and together these disorders occur in about 80 per cent of patients with the syndrome. The diarrhea is usually painless, bloodless, and not nocturnal.[14,15]

About one-fourth of the patients will complain of belching, bloating, and increased flatus. A lesser number will note large amounts of mucous in their bowel movements, a fact that has resulted in the synonym "mucous colitis". Anorexia, nausea, and heartburn are even less common complaints. Vomiting and weight loss are rare. A history of previous surgery without satisfactory relief of symptoms is common. The major point to be emphasized is the chronicity of all of the above symptoms without significant detriment to the patient's general health.

Physical examination is of relatively little help in establishing the diagnosis. It may, however, help confirm an impression gained by the history. Tremulous voice, excessive perspiration, dilated pupils, hyperactive gag or deep tendon reflexes, and diffuse abdominal tenderness without guarding may be signs of functional disease. In addition, increased tympany, a palpable cecum or sigmoid, and multiple abdominal surgical scars may be present.

The workup should be sufficient to exclude the presence of organic disease as the etiology of the patient's symptom complex. Too often a small hiatal hernia and one or two colonic diverticula are discovered, and the patient is officially diagnosed as "diverticulitis and hiatal hernia with functional overlay". An upper GI series with small bowel follow-through, barium enema, and sigmoidoscopy are always indicated, not only in that they rule out organic pathology but also because abnormal motility, transit time, and mucous secretion can frequently be demonstrated. Gastric analysis or IVP may be indicated, and it has recently been suggested that a lactose tolerance test be included in the workup. After a complete workup the likelihood of missing serious pathology has been reported to be quite small.

The Differential Diagnosis

There are several signs and symptoms which should lead the physician to suspect organic rather than functional disease. These are listed in Table 3. If any of these factors are present, strong consideration should be given to a complete differential diagnosis. The differential is protean and for the most part well known. No attempt will be made to list the individual disease of the stomach, gall bladder, pancreas, and small and large bowel which can produce symptoms of functional disease. It is necessary to recall, however, that functional disorders may coexist with organic pathology and that correction of the latter problem alone may not result in satisfactory relief of symptoms.

TABLE 3

FACTORS POINTING TO ORGANIC DISEASE

1. Pain recurring in the same location, i.e., not shifting in nature.
2. Long pain-free intervals.
3. Short duration of symptoms.
4. Pain or diarrhea awakening the patient at night.
5. Significant weight loss.
6. Evidence of gastrointestinal bleeding.
7. Fever and leukocytosis.
8. Elevated sedimentation rate.
9. Onset of symptoms after age 60.

A few of the less commonly considered points in the differential should be mentioned. Porphyria of the acute intermittent type should be considered. Ischemic bowel may well produce post prandial pain, bloating, diarrhea, or constipation.[22] Food allergy is a possibility but is probably very rare.[23] Diarrhea and constipation may be manifestations of diabetic neuropathy.[24,19]

In recent years there has been considerable interest and controversy regarding lactase deficiency as a cause for symptoms of the irritable colon. While there is general agreement that the incidence of lactase deficiency is high (6 per cent to 21 per cent of Caucasians and 60 per cent to 70 per cent of Negroes), there is far less agreement on its significance. No attempt will be made to argue one or the other side of the issue, but the following points should be kept in mind when dealing with patients suspected of

functional bowel disease. Flat lactose tolerance curves correlate quite well with bioassay proof of lactase deficiency, yet it has been well documented that flat lactose tolerance curves occur in asymptomatic persons.[2] Moreover, in two separate studies of a total of 71 patients with symptoms of abdominal pain, diarrhea, and bloating, only 27 were shown to be lactase deficient.[2,18] It has been noted that a small but definite per cent of symptomatic lactase-deficient patients will fail to respond to a lactose-free diet.[2,21] This too has been disputed.[26] A significant number of symptomatic patients will give a definite history of milk intolerance and on examination have been shown to have a normal lactose level.[21] Finally, lactase deficiency does not cause constipation as is often the problem in functional disease.

It would seem reasonable to state that about one-third to one-half of persons with functional symptoms which include diarrhea, not constipation, may be lactase deficient and that a large portion of these patients will respond to a lactose-free diet. It is suggested that failure to respond to such a diet be regarded not as a curiosity but as further evidence of functional disease. This is not unreasonable if one recalls that lactase deficiency may be asymptomatic.

Treatment

Treatment programs are multiple. Many variations on the basic theme are contained in the reference list. It is however the basic theme that is important. Simply, treatment consists in putting the colon at rest and waiting for normal physiology to "cure" the patient. To put the colon at rest one must first put the patient at rest. If the above mentioned approach to functional bowel disease has been followed, the physician will be fully aware of the patient's self-diagnosis, e.g., "cancer", "colitis", "ulcers", etc. Having carried out a complete examination, he will be able to neutralize the patient's specific fears and reassure him that there is no organic pathology. Explanation of what the patient does have can be a very delicate task. Many patients will immediately equate the term "functional" with "neurotic", and all rapport can be lost in a matter of seconds. A good approach would be to explain to the patient that he suffers from a nervous imbalance of the bowels, over which he has no conscious control. The analogy of blushing is often useful in this regard. After reassurance and explanation the next step is hospitalization. The patient should be in the hospital for a period of about two weeks on a bowel management program. This serves two purposes; it allows close supervision, and it removes the patient from the everyday stresses that aggravate his condition. Should the physician feel that hospitalization is a rather drastic step in the management of such a common problem, he need only recall the correlation between hospitalization and the healing of another common gastrointestinal problem, peptic ulcers.

Diet should start with frequent small feedings of material which is primarily absorbed in the small bowel. After a few days bulk foods are added, one or two at a time. All irritating foods are completely omitted. Hot liquids are given before breakfast and at regular intervals throughout the day. These help to stimulate the normal gastrointestinal reflexes.

The patient should not expect to have a bowel movement for about ten days. Absolutely no laxatives or enemas are given. Stool softeners are used as needed either in the form of oil retention enemas or oral agents. Again, no attempt is made to have an induced bowel movement. Sedatives and antispasmodics are given on a routine basis. In their place Phenothiazines have been recommended for the patient with diarrhea.[27] Abdominal pain is treated with heat only, whenever possible.

Following the hospital treatment a modified program of bowel management is maintained at home for a variable period of time. About 80 per cent of patients will become symptom-free within one to three months, and 75 per cent will remain symptom free. A small number will continue to have periodic difficulty, usually of relatively minor degree.

Summary

A clinically oriented discussion of the irritable bowel has been presented with emphasis on its frequent occurrence yet relative neglect by "modern medicine". Various etiologies have been discussed and the clinical syndrome described. The importance of the medical history in diagnosis was stressed. Some of the more uncommon differential diagnoses were mentioned with particular reference to lactase deficiency. The general outline of an effective treatment program was presented. •

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Double-blind drug study in depressed outpatients

Joe Yamamoto, MD, Frank M. Kline, MD, and Rodney W. Burgoyne, MD, Los Angeles, California*

THIS IS A REPORT of a double-blind controlled comparison of the treatment of depressed psychiatric outpatients with amitriptyline and diazepam. Initially, we had intended to treat patients who were bereaved and consequently depressed.[1] A search throughout the Los Angeles County-University of Southern California Medical Center made it soon apparent that we would not be able to find sufficient numbers of patients who were in mourning and depressed to complete the study on that basis. Consequently, we chose depressed outpatients in the Psychiatric Outpatient Clinic for Adults at our Medical Center to be the subjects in our study. They were randomly assigned for treatment either with amitriptyline or diazepam. Each patient was seen for initial evaluation and four weekly visits.

Sixty patients were started in our study. Twelve patients were lost to follow-up or were not followed to completion. Thus, there were 48 patients who are the subject of our main report. The rate of attrition was similar to the rate ordinarily seen in our patients.[2]

Results

There were 23 patients treated with amitriptyline and 25 with diazepam. Since the patients were not assigned with controls for age and sex, but by random assignment, it turned out that there were three men in the amitriptyline group and ten in the diazepam group.[3] Similarly, there were 20 women in the amitriptyline group and 15 women in the diazepam group. The ages of

TABLE 1

Summary of the Anxiety Cluster[1] Mean Score

Visit	Treatment Group	Number of Patients in Sample	Pretreatment		Treatment	
			Unadj.	Adj. +	Unadj.	Adj. +
1	ELAVIL	23	11.0	11.1	10.6	10.7
	VALIUM	23	11.1	11.1	9.7	9.6
2	ELAVIL	19	11.3	11.3	9.9	9.9
	VALIUM	24	11.3	11.3	9.4	9.4
3	ELAVIL	15	10.7	10.6	9.3	9.3
	VALIUM	18	10.6	10.6	8.5	8.4

[1] Anxiety cluster is composed of the following symptoms: anxiety, agitation, tension, hostility, and overactivity. The score is based on the sum of the individual scores for each of the symptoms. The mean score can range from a maximum of 20 (if all five symptoms are scored as severe) to a minimum of five (if all five symptoms are scored as none).

+ Adjusted for pretreatment differences by the method of analysis of covariance where appropriate.

No statistically significant treatment differences were found.

*Dr. Joe Yamamoto is Professor of Psychiatry, Dr. Frank M. Kline is Assistant Professor of Psychiatry, and Dr. Rodney W. Burgoyne is Assistant Professor of Psychiatry, University of Southern California School of Medicine, Los Angeles, California 90033.

TABLE 2

Summary of the Depression Cluster[1]
Mean Score

Visit	Treatment Group	Number of Patients in Sample	Pretreatment Unadj.	Pretreatment Adj. +	Treatment Unadj.	Treatment Adj. +
1	ELAVIL	23	14.6	14.9	13.7	14.0
	VALIUM	23	15.1	14.9	13.1	12.9
2	ELAVIL	19	14.8	15.1	12.8	13.0
	VALIUM	24	15.3	15.1	11.5	11.3
3	ELAVIL	15	14.5	15.2	10.1	10.4
	VALIUM	18	15.8	15.2	11.4	11.2

[1] Depression cluster is composed of the following symptoms: depressed mood, psychomotor retardation, anorexia, apathy, weak, and tired. The score is based on the sum of the individual scores for each of the symptoms. The mean score can range from a maximum of 24 (if all six symptoms are scored as severe) to a minimum of six (if all six symptoms are scored as none).

+ Adjusted for pretreatment differences by the method of analysis of covariance where appropriate.

No statistically significant treatment differences were found.

the patients in the amitriptyline group were from 20 to 62, with a mean age of 35, and in the diazepam group from 20 to 58, with a mean age of 41. Table 1 illustrates the results of treatment on the anxiety cluster of symptoms. As can be seen on the visits subsequent to the beginning of psychotropic treatment, there was an improvement with both drugs which was maintained and slightly improved on subsequent visits. No statistically significant treatment differences were found.

Table 2 illustrates the evaluation of the depression cluster of symptoms. Again, there were improvements on each visit subsequent to the beginning of medications with improvement on subsequent visits. No significant treatment differences were found.

The Zung Self-Rating Scale for Depression was administered.[4] There were improvements in the Zung Scale scores with both drugs, and again no statistically significant differences were found, as can be seen in Table 3.

A detailed analysis was made of the following symptoms: anxiety, tension, agitation, insomnia, depressed mood, psychomotor retardation, anorexia, apathy, weakness, tiredness, headache, overactivity, hostility, sensitive feelings, loss of libido, and psychosomatic complaints.[5,6,7] It was found that diazepam had a slightly greater improvement of the symptoms of anxiety, anorexia, and sensitive feelings, and amitriptyline had a better result on the treatment of tension. However, these data were a part of 68 separate statistical tests which were performed for our study. Thus, there is a strong probability that at least 3.4 of these tests would show a significant difference at the .05 probability level by chance alone.[8] For the other symptoms listed above, there was no significant difference between the two drugs.

TABLE 3

Summary of Zung Self-Rating Scale for Depression[1]
Mean Score

Visit	Treatment Group	Number of Patients in Sample	Pretreatment Unadj.	Pretreatment Adj. +	Treatment Unadj.	Treatment Adj. +
3	ELAVIL	16	54.2	52.8	48.4	47.7
	VALIUM	22	51.7	52.8	46.6	47.2

[1] As the Zung score decreases, the patient is becoming less depressed.

+ Adjusted for pretreatment differences by the method of analysis of covariance where appropriate.

No statistically significant treatment differences were found.

Table 4 summarizes the physicians' global evaluation of treatment results. With amitriptyline, 15 out of 22 patients were rated as improved, providing a 68 per cent improvement rate. With diazepam, 20 out of 25 patients were reported as improved, with an 80 per cent improvement rate. If one were to just compare the results of treatment rated as either excellent or good, amitriptyline was reported to have resulted in 41 per cent excellent or good treatment results and the diazepam with 40 per cent. No statistically significant treatment differences were found.

Twenty-two of the 23 patients on amitriptyline and 21 out of the 25 patients on diazepam reported side effects. Fifty per cent of these patients reported the same side effects before the study began. There was no statistically significant difference between the two treatments with regard to side effects.

Discussion

This study was begun with the hope of treating patients who were depressed as a result of mourning. We completed the study with regular psychiatric outpatients who were depressed. As a result of this study, we were unable to conclude that either drug is superior for the treatment of the target symptom of depression. Indeed, the results were rather disappointing in that the per cent of improvement was not dramatic, especially if one considered those who had either excellent or good results to treatment. With amitriptyline, the per cent was 41 per cent and with diazepam, 40 per cent, in these improvement categories. It would appear that recent studies on comparisons of antidepressant drugs and tranquilizers which have shown that both seem to have some degree of effectiveness with depressed patients have been substantiated by our study.[9]

We do have some misgivings about making too broad, or too general conclusions as a result of our limited study. First of all, the number of patients was not as many as we had hoped for, since we had an attrition rate. The fact that the dosage range of the amitriptyline was to a maximum of 150 mg. a day and for diazepam 30 mg. a day limits the value of our work. This is simply because many clinicians would use rather larger dosages of both drugs. In other words, to test the effectiveness of both drugs in clinical practice, inclusion of higher dosage range would have been advisable.[10]

TABLE 4

Summary of Physician's Evaluation of Test Drug Therapy

Treatment Group	Total in Sample	Evaluation				
		None	Fair	Good	Excellent	Missing
ELAVIL	23	7	6	7	2	1
VALIUM	25	5	10	7	3	0

Treatment Group	Mean Score[1]
ELAVIL	2.18
VALIUM	2.32

[1] Scored as follows: 1=None, 2=Fair, 3=Good, 4=Excellent.

Patient with no reported evaluation (missing) not included in calculation of mean.
No statistically significant treatment difference was found.

Conclusion

It would appear that the observations of other clinicians about the indications for diverse drugs in the treatment of the target symptoms of depression have been confirmed by our data. In view of this, it would appear that we as clinicians should try to use our best judgment about when to use antidepressants, antianxiety agents, and the major tranquilizers. •

ACKNOWLEDGEMENT

We are indebted to Drs. Samuel Rapport and Daniel Funderburk for their assistance. Our appreciation is due Merck, Sharp & Dohme for supplying the medications and technical support.

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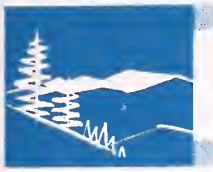

COLORADO

Young Patients "Adopted" at Children's Hospital

An unusual type of adoption is occurring at Children's Hospital in Denver. Several Denver organizations are "adopting" children at the hospital to discharge the children's debts to the blood bank. They are paying not with money but with donations of blood. This is no small task. Some children require as much as 100 units of blood or blood products while they are being treated. It must be replaced, so that blood will be available for others who need it.

One way to replace the blood is for the parents to pay for it—$12.50 per unit—so the blood bank can then purchase blood from persons who sell their blood rather than donate it. For a child who has used 100 units of blood, that's a bill of $1,250, an overwhelming debt for most parents. But even if the parents were able to pay that amount, the hospital would rather not have the money. The hospital prefers to have the blood replaced in the blood bank.

But what if a family is not able to replace the blood through donations from themselves, relatives, and friends? This is often the case, particularly when the family is from another state. The North Valley Jaycees, the Cherry Creek Jaycees, an aerospace company, and the Junior Oldtimers' Club (an organization of Union Pacific Railroad employees) are helping solve that problem. They have responded to the "adoption" idea conceived by Ralph A. Franciosi, MD, who is a member of the pathology department at Children's Hospital and also head of the hospital's blood bank, and Mrs. Leon Selig, who is directing the hospital auxiliary's blood donor recruitment program.

Consider the case of Jimmy. He has leukemia. During a recent stay at the hospital, he required an enormous amount of blood products to keep him alive. Because he was from another state, there were no local resources to replace that amount in the blood bank. The Cherry Creek Jaycees came to the hospital and donated enough blood to entirely pay Jimmy's bill. Jimmy is home now, but should he ever have another relapse, as frequently happens with leukemia patients, the Cherry Creek Jaycees stand ready to help him again. In the meantime, they have done the same service for several other children, in addition to donating blood to be used as needed.

The other organizations have responded similarly. "This arrangement is beneficial in more ways than just the aid to the families," explains Dr. Franciosi. "Our goal is to have 100 per cent of the blood needs at the hospital supplied by vounterr donors. Because of the humanitarianism of these organizations and many individuals, 80 per cent is now supplied that way. As far as I know, there is only one other hospital in the nation that has a higher percentage. There are several reasons for wanting volunteer donors," explains Dr. Franciosi. "One is that it has been proven that generally—I stress 'generally', because there are exceptions—volunteer donors are healthier than paid donors. Since they are not seeking money, they are honest about their medical history. Many paid donors, on the other hand, are alcoholics, drug addicts, and others who live in conditions that invite hepatitis. Although we follow the strict regulations required by the American Association of Blood Banks," continues Dr. Franciosi, "so far no foolproof test has been developed to detect hepatitis. But with volunteer donors, the likelihood of their having the disease is considerably less than that of the paid donor. Also, volunteers usually donate repeatedly, so we are able to see whether or not recipients of their blood are adversely affected."

Dr. Franciosi explains that the special needs of Children's Hospital also make the volunteer donor extremely valuable. The hospital is not large, so it keeps a small inventory of blood, in order not to waste any. But when blood or blood products are needed, they are needed in a hurry and often in large amounts. Blood may suddenly be needed for a newborn who, because of the Rh factor, must have a complete exchange of blood. A newborn with lung problems may need absolutely fresh blood to transport what oxygen is being taken in by his poorly functioning lungs and deliver it efficiently to his tissues. A child having surgery to correct a twisted spine could require as much as six to ten units of blood for one operation. A child with leukemia needs vast amounts of platelets and white blood cells to stop the hemorrhaging and fight infection.

These special needs require donors who are "on call". "We are fortunate to have this type of donor," says Dr. Franciosi. "Many of them have made arrangements with their employers, so they can come to the hospital on short notice. At the aerospace company, for example, when we call them with an emergency request for a particular type of blood, they put a call out over the intercom system and the donors are here in no time. We need more of these highly motivated people."

Local Members Elected to Specialty College

Three area physicians, Dr. R. William Hilty, Jr., of Boulder, and Drs. Donald G. Butterfield and Thomas M. Golbert, both of Denver, were recently elected to the American College of Physicians.

Dr. Middleton of CARIH Named President of American Academy of Allergy

Dr. Elliott Middleton, Jr., director of Clinical Services and Research at CARIH—the Children's Asthma Research Institute and Hospital in Denver—became president of the American Academy of Allergy at its 28th Annual Scientific Meeting in San Francisco.

More than 1,000 allergists attended the three-day series of scientific sessions. The scientific presentations featured four papers by CARIH doctors: Dr. Hyman Chai, head of the Hospital Services Division; Dr. Richard Smith, research immunobiologist; Dr. Richard Newcomb, head of the Immunology Division; and Dr. Ronald Coffey, research biochemist. Dr. Middleton is also associate clinical professor in the Department of Medicine at the University of Colorado School of Medicine.

Dr. Slonim to be Guest Lecturer

N. Balfour Slonim, MD, a Denver physician, will be a guest lecturer at the 15th Annual Seminar of the Michigan Society for Inhalation Therapy, which will be held in Detroit at the Hotel Pontchatrain, May 24, 25, and 26. Dr. Slonim will present two lectures, "Respiratory Acidosis and Alkalosis—A Model for Visual Analysis" and "Mechanics of Breathing—A Model for Visual Analysis".

Eye Specialist Becomes Assistant Clincal Professor

Charles O. Arnold, MD, a Denver eye specialist, has been promoted to assistant clinical professor of ophthalmology on the volunteer faculty of the University of Colorado School of Medicine. Dr. Arnold joined the medical faculty in 1962 as a clinical assistant and became clinical instructor in 1967.

A diplomate of the American Board of Ophthalmology, Dr. Arnold's professional affiliations include the Denver and Colorado Medical Societies and the American Medical Association.

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MONTANA

Retiring Members Honored

Four members of the Southeastern Montana Medical Society were honored during January at a special meeting in Miles City. The Montana physicians, all of whom have recently retired, were feted during an evening of camaraderie and reminiscence. Drs. B. C. Farrand, S. A. Olson, Samuel A. Weeks, and M. D. Winter, Jr., told of their experiences in the practice of medicine during the 1920's and 1930's. Dr. James K. Cope, president of the Southeastern Montana Medical Society, presided as master of ceremonies of the event, which was planned by Dr. Warren H. Randall, secretary of the component society.

NEW MEXICO

New Mexico Member Contributes to Quarterly Journal

Twenty-five years of research on the effects of radiation resulting from atomic bombs dropped over Hiroshima and Nagasaki has been summarized by a University of New Mexico pathologist, Dr. Robert E. Anderson, in the current edition of *Human Pathology*, a quarterly medical journal. Dr. Anderson, chairman of the Department of Pathology at the UNM School of Medicine, was guest editor for the publication which records research done by American and Japanese pathologists for the Atomic Bomb Casualty Commission.

Dr. Anderson served on the Commission in Hiroshima from 1962 to 1964. Three other University of New Mexico pathologists who were also visiting research scientists for the Commission in Hiroshima contributed articles for the summary; they are Dr. Charles R. Key, Dr. Gary M. Troup, and Dr. Scott W. Jordan.

The main mission of the group has been to study the long-term effects on survivors of the atomic bombings. Dr. Anderson has noted that a significant number of tumors are appearing in individuals who were under the age of ten when exposed to the atomic radiation. These people are now between 25 and 35 years of age, so it has taken 20 years for the phenomenon to appear.

MEDICAL SCHOOL NOTES

University of Colorado Medical Center

The final $10,000 of an $80,000 gift from the Children's Metabolic Research Foundation was presented to the University of Colorado Medical Center to speed the search for new knowledge about a group of congenital diseases which often blight young lives. The Foundation was founded as the Gaucher Research Foundation but changed its name in 1967 to indicate its concern with the full range of congenital metabolic disorders.

The Foundation's pledge of $80,000 made possible acceptance of a $330,000 grant from the National Institutes of Health for the construction and equipping of the B. F. Stolinsky Research Laboratories at the John F. Kennedy Child Research Center on the CU medical campus. The Stolinsky Laboratories are being utilized by Medical Center physicians and scientists for basic research into Gaucher's disease and other metabolic disorders. The studies are seeking new facts which will make possible better diagnosis, prevention, understanding, and possible cures for the inborn errors of metabolism. Research is progressing on a broad range of scientific disciplines—neurophysiology, neuropharmacology, developmental pediatrics, population genetics, biochemical genetics, nutrition, lipid chemistry, developmental biochemistry, neurochemistry, behavioral science, and cytogenetics.

University of Nevada School of Medical Sciences

St. Mary's Hospital and the School of Medical Sciences at the University of Nevada, Reno became officially linked this week when officials of the hospital and the university signed an affiliation agreement. The affiliation makes St. Mary's one of the medical school's new teaching hospitals and opens the way for greater development in such common interest areas as patient care, research, community service, and medical instruction. The two-year school, which opened last September with a charter class of 32 students, has a similar affiliation with Washoe Medical Center. The school is also associated with the Reno Veterans Administration Center through the Dean's Committee.

Dr. John W. Brophy, chief of staff at St. Mary's, said a search committee will soon be appointed to locate and recommend a director of medical education, a newly-created position at the hospital. The medical education director will help coordinate and plan developments between the hospital and the school.

Dr. George T. Smith, dean of the medical school, noted that approximately 115 doctors in the Washoe County area participate in training for the medical students. "Our students need clinical experience in their training," said Dean Smith. "We rely on community hospitals and physicians so we won't have to build an elaborate and expensive university hospital." Dean Smith added that the affiliation is "another prime example of St. Mary's willingness to help the university and community in any way possible."

J. L. Reveley, administrator of St. Mary's, said the agreement is an opportunity for a continuing educational program for hospital physicians and employees. Under the affiliation, hospital patients and outpatients will be available for student instruction, provided both patient and physician agree. A joint liaison committee has been appointed to develop programs and activities between the two institutions.

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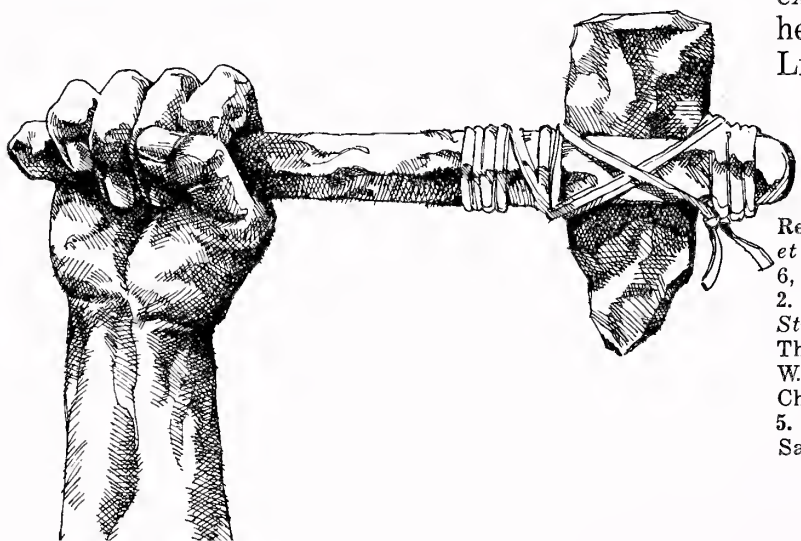
At least seventy-five out of one hundred adults with duodenal ulcers are men.[1] Why? It may be significant that duodenal ulcer patients tend to crave recognition and are especially vulnerable when their manly assertive independence is threatened.[2]

Hypersecretion—an atavistic response. One investigator, who has studied the personalities of duodenal ulcer patients, wonders if masculine competitiveness is related to man's atavistic urge to devour his adversary. It is striking, he reports, that an accentuation of gastric acid secretion and motility can be induced in patients with ulcers by discussions that stimulate feelings of inadequacy, frustration and resentment.[2]

By chance? A lean, hungry lot. Was the link between emotions and gastric hyperacidity acquired through mutation to serve a purpose? During man's jungle period of evolution, the investigator points out, a male dealt with a foe by killing and devouring it. He concludes that it may be more than coincidence that peptic ulcer patients appear to be a lean, hungry, competitive group.[3]



Big boys don't cry. If more men cri maybe fewer would wind up with duoden ulcers. But men will be men—the sum total their genes and what th are taught. According another clinician, when mother admonishes her s who has hurt himself th big boys don't cry, she teaching him stoicism. Crying is the negation everything society thin of as manly. A boy sta defending his manhood an early a

Take away stres you can take away symptom

There is no question that stress plays a role in the etiology of duodenal ulcer. One prominent physician[5] has observed that may a man with an ulcer loses his symptoms the day he shuts up the office and starts out on a vacation. The problem is, the type of man likely to have an ulcer is the type least likely to take long vacations or take it easy at work.

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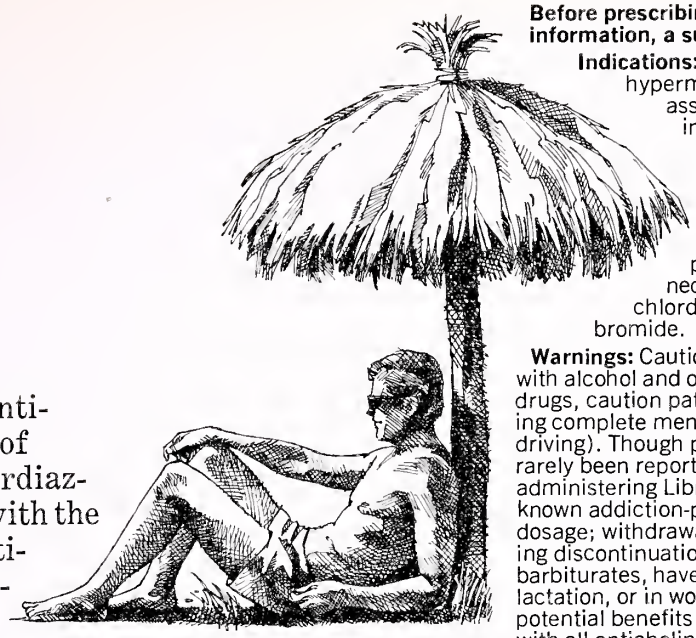

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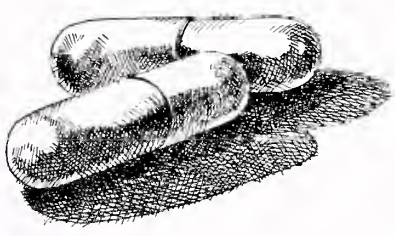

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Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

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OBITUARIES

Utah

William H. Bennion, MD, a prominent Salt Lake City internist, died February 28, 1972, at the age of 50. The son of Samuel Thomas and Lorilla Horne Bennion, he was born September 17, 1921, in Salt Lake City. He married Wanda Green on June 5, 1941.

Doctor Bennion graduated from the University of Utah with a BS degree in 1942 and his MD degree in 1945. He interned at St. Luke's Hospital in Chicago, Illinois. His residencies were served at the Salt Lake General and L.D.S. Hospitals in internal medicine. He had been associated with the Memorial Medical Center since 1953.

A diplomate of the American Board of Internal Medicine, Doctor Bennion was also a fellow of the American College of Physicians. He was a member of the Salt Lake County, Utah State, and American Medical Associations as well as the Utah Society of Internal Medicine.

Doctor Bennion was governor and instructor of the Utah Diabetic Association and an honorary member of the Vienna Medical Association. He was an active staff member of L.D.S. Hospital, courtesy staff member of Holy Cross Hospital, and an associate clinical professor of Internal Medicine at the University of Utah College of Medicine.

Survivors include the doctor's widow and five daughters and a son, all of Salt Lake City.

Rae E. Noyes, MD, Salina physician and surgeon, died March 2, 1972, at the age of 66. Born April 24, 1905, in Ephraim, he was the son of Newton E. and Mary Beal Noyes. He married Helen McArthur on December 23, 1927, in Salt Lake City.

A graduate of Snow College and the University of Utah, Doctor Noyes received his MD degree in 1935 from Harvard Medical School. Doctor Noyes interned at L.D.S. Hospital in Salt Lake City and commenced his medical practice in Salina in 1936. He was a member of the Central Utah, Utah State, and American Medical Associations.

A veteran of World War II, Doctor Noyes had served as a Selective Service examiner. He was instrumental in obtaining rodeo grounds in Salina, and was a member and past drill master of the Salina Riding Club. He had received several awards at horse shows.

Surviving the doctor are his widow, two sons and two daughters and 11 grandchildren.

Montana

Archie Leland Gleason, MD, died on January 12, 1972, in Great Falls, Montana. Doctor Gleason was born in Glenville, Minnesota on June 5, 1891. He received his BS degree from the University of Chicago in 1916 and his MD degree from Rush Medical College three years later. After serving in the Army Medical Corps during World War I, Doctor Gleason came to Great Falls where he practiced medicine until his retirement in 1949.

Doctor Gleason was a fellow of the American College of Physicians and a diplomate of the American Board of Pediatrics. He was also affiliated with the Montana State Medical Association and the American Medical Association.

In addition to his widow, Doctor Gleason is survived by two sons and four grandchildren.

Mary Elizabeth Soules, MD, died in Helena, Montana on February 12, 1972. Doctor Soules, who was born on June 8, 1910, earned her BS degree from North Dakota University in 1932 and her MD degree from the University of Louisville School of Medicine in 1934. She served as a public health officer in several communities in North Dakota, Oregon, and Montana before coming to Helena in 1959 to join the staff of the State Board of Health. At the time of her death, Doctor Soules was administrator of the Health Services Division and acting chief of the Bureau of Preventive Health Services of the Montana State Department of Health and Environmental Services. In 1968 Doctor Soules was recognized for her outstanding service in public health by the Montana Public Health Association.

Robert Scott Stokoe, MD, died in Billings, Montana on February 14, 1972. Born on April 29, 1917 in Chicago, Illinois, Doctor Stokoe attended Superior State Teacher's College, Northwestern University, and Marquette University School of Medicine, where he was graduated with an MD degree in 1944. In 1947, after serving in the medical corps of the U. S. Navy during World War II, Doctor Stokoe came to Billings to engage in the general practice of his profession.

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Assistant Scientific Editor for Colorado, Rocky Mountain Medical Journal: Carl H. McLauthlin, Denver.

Executive Director: Mr. Donald G. Derry, 1809 E. 18th Ave., Denver. Office Telephone (303) 399-1222.

Montana Medical Association

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Alternate Delegate to the A.M.A.: Mark B. Listerud, Wolf Point.

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Associate Editor, Rocky Mountain Medical Journal: Mr. L. Russell Hegland, Billings.

Executive Secretary: Mr. L. Russell Hegland, 1236 North 28th St. (P.O. Box 1692) Billings 59103. Telephone (406) 252-6673.

Nevada State Medical Association

OFFICERS—1971-72—Terms of Officers and Committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at th 1972 Annual Session.

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President-elect: John P. Sande, Reno.

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Alternate Delegate to A.M.A.: Kenneth E. Turner, Las Vegas.

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Assistant Scientific Editor for Nevada, Rocky Mountain Medical Journal: Wesley W. Hall, Reno.

Associate Editor, Rocky Mountain Medical Journal: Mr. Nelson B. Neff, Reno.

Executive Director: Mr. Nelson B. Neff, 3660 Baker Lane, Reno 89502. Telephone (702) 323-6788.

New Mexico Medical Society

OFFICERS—1971-72—Terms of Officers and Committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at the 1972 Annual Session.

President: Vaun T. Floyd, Albuquerque.

President-Elect: Don R. Clark, Roswell.

Vice President: Armin T. Keil, Raton.

Secretary-Treasurer: Ronald V. Dorn, Jr., Albuquerque.

Immediate Past President: Harry D. Ellis, Santa Fe.

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Vice Speaker, House of Delegates: Rex G. Quigley, Hobbs.

Delegate to A.M.A.: Allan L. Haynes, Clovis.

Alternate Delegate to A.M.A.: Emmit M. Jennings, Roswell.

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Assistant Scientific Editor for New Mexico, Rocky Mountain Medical Journal: William S. Curran, Albuquerque.

Associate Editor for New Mexico, Rocky Mountain Medical Journal: Mr. Ralph R. Marshall, Albuquerque.

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Assistant Executive Directory: Mr. Thomas A. Bodnar, Albuquerque.

Utah State Medical Association

OFFICERS—1971-72—Terms of Officers and Committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at the 1972 Annual Session.

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President-elect: William R. Christensen, Granger.

Past President: Russell M. Nelson, Salt Lake City.

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Vice Speaker, House of Delegates: John W. Emmett, Logan.

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Associate Editor for Utah, Rocky Mountain Medical Journal: Mr. Hoyt W. Brewster, Salt Lake City.

Executive Director: Mr. Hoyt W. Brewster, 42 South Fifth East Street, Salt Lake City. Telephone (801) 355-7477.

Wyoming State Medical Society

OFFICERS—1972—Terms of Officers and Committeemen expire December 31, 1972. At the 1971 Annual Session, terms of office (with the exception of Delegate and Alternate Delegate to AMA) were changed to expire at the end of the calendar year rather than at the Annual Session.

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Secretary: Donald B. Hunton, Cheyenne.

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Vice Speaker of the House: Norman R. Black, Cheyenne.

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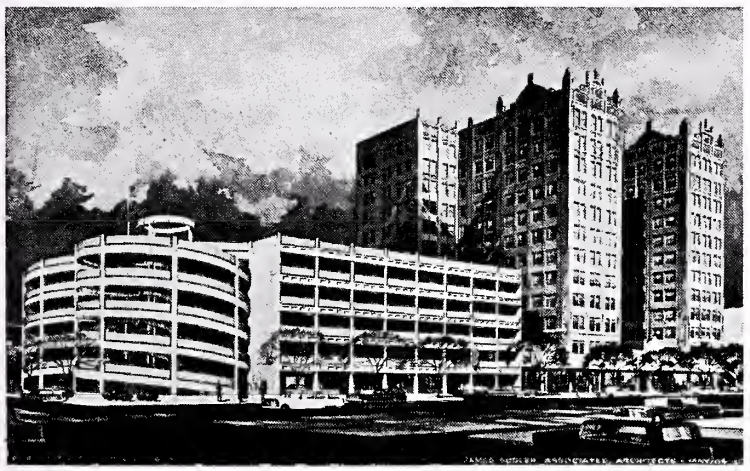

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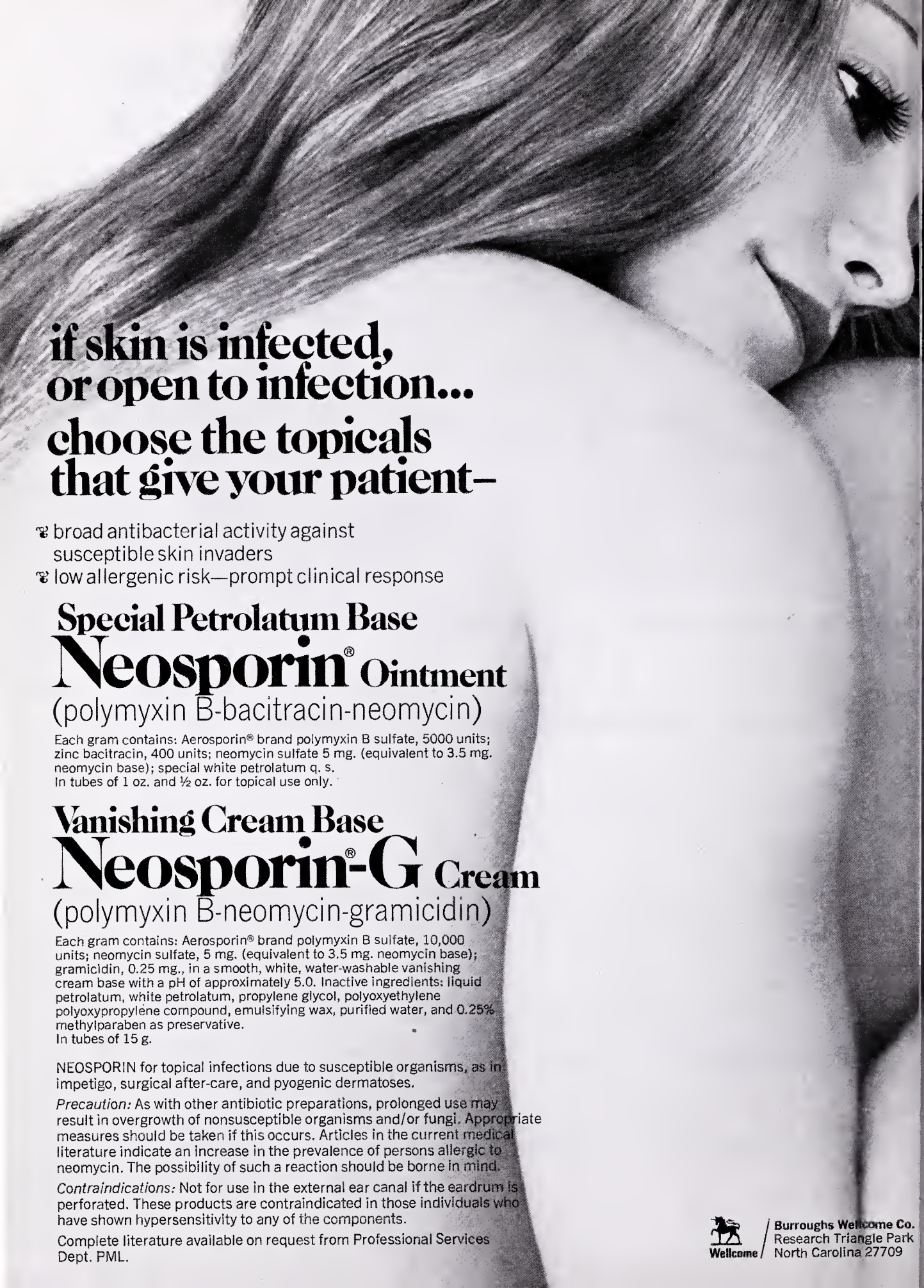

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Warnings Age, weight, dosage, duration of therapy, existence of concomitant diseases, and concurrent potent chemotherapy affect incidence of toxic reactions Carefully instruct and observe the individual patient, especially the aging (forty years and over) who have increased susceptibility to the toxicity of the drug Use lowest effective dosage Weigh initially unpredictable benefits against potential risk of severe, even fatal, reactions The disease condition itself is unaltered by the drug Use with caution in first trimester of pregnancy and in nursing mothers Drug may appear in cord blood and breast milk Serious, even fatal, blood dyscrasias, including aplastic anemia, may occur suddenly despite regular hemograms, and may become manifest days or weeks after cessation of drug Any significant change in total white count, relative decrease in granulocytes, appearance of immature forms, or fall in hematocrit should signal immediate cessation of therapy and complete hematologic investigation Unexplained bleeding involving CNS, adrenals, and G I tract has occurred The drug may potentiate action of insulin, sulfonylurea, and sulfonamide-type agents Carefully observe patients taking these agents Non-toxic and toxic goiters and myxedema have been reported (the drug reduces iodine uptake by the thyroid) Blurred vision can be a significant toxic symptom worthy of a complete ophthalmological examination Swelling of ankles or face in patients under sixty may be prevented by reducing dosage If edema occurs in patients over sixty, discontinue drug

at regular intervals Careful detailed history for disease being treated and detection of earliest signs of adverse reactions, complete physical examination including check of patient's weight, complete weekly (especially for the aging) or an every two week blood check, pertinent laboratory studies Caution patients about participating in activity requiring alertness and coordination, as driving a car, etc Cases of leukemia have been reported in patients with a history of short- and long-term therapy The majority of these patients were over forty Remember that arthritic-type pains can be the presenting symptom of leukemia

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The "Toll Collectors", which is reproduced on our cover with the permission of the Historical Society of Montana, was painted in 1913 by Charles M. Russell.

The painting immortalizes a meeting of white man and Indian. In the 1870's Montana's plains Indians, mostly Crow and Blackfoot, were placed on reservations. In 1881 Russell, who was just 17 and had been in Montana territory barely a year, joined a cattle drive as a horse wrangler. When the drive entered the Crow Reservation on the south bank of the Yellowstone River, the Indians demanded a dollar a head for the privilege of driving the cattle across their land. The herd raises a cloud of dust in its haste to make the crossing. Its movement is contrasted by the cowboy in the foreground who has halted his horse to bargain with the Indian. The Indian, a proud and dominant figure, in fact the focal point of this painting, is still trying to protect his diminishing lands.

Charles Russell referred to himself not as an artist but as an illustrator. He was an illustrator of a past way of life, but his importance as an artist comes from his portrayal of an era that he knew was dying. The "Toll Collectors" depicts the white man's world moving into and eventually taking over what once belonged to the Indian. But as seen here, the Indian does not lose his dignity with his land.

A full-color 20" x 30" oil on canvas reproduction of the "Toll Collectors" is available to our readers for $25.00 plus postage. Orders may be sent to the Colorado Medical Society, 1809 East 18th Avenue, Denver, Colorado 80218.

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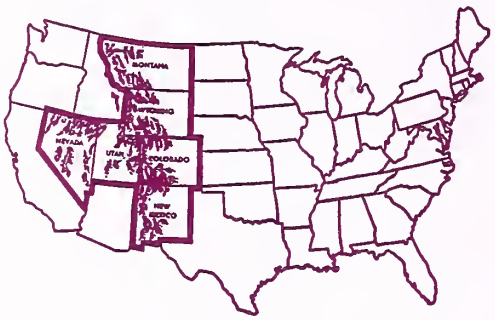

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To the Editor:

I am compiling case reports of allergic reactions to biting insects, i.e., mosquitos, fleas, kissing bugs, bed bugs, gnats and flies—including horsefly, sandfly, deerfly. I am also interested in reactions to fire ants.

I would like physicians to supply me with case reports of those patients who have had reactions to such insects. Include in your reports, the history of the type of reaction and complications if any; the immediate treatment; if desensitization were attempted, what were the results? Send to:

Claude A. Frazier, MD
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Jane Nugent Cochems Competition

The University of Colorado School of Medicine announces the 11th Annual Cochems Competition, funds for which were provided in the will of the late Mrs. Jane Nugent Cochems. A prize of $2,500 will be awarded to the author of the best paper in the field of "Thrombophlebitis and Basic Vascular Problems". Basic vascular problems under consideration in this instance should be concerned with the underlying mechanisms or processes of vascular disease, particularly those associated with thrombosis, but not necessarily restricted to it.

The competition is open to all persons holding the doctorate degree and entries must be received in triplicate, including all charts, illustrations, and photographs, on or before November 15, 1972. For income tax reasons, eligibility is limited to those physicians who are subject to U.S. income tax regulations.

Inquiries regarding the competition and all manuscripts should be submitted to the Dean, School of Medicine, University of Colorado Medical Center, 4200 East Ninth Avenue, Denver, Colorado 80220.

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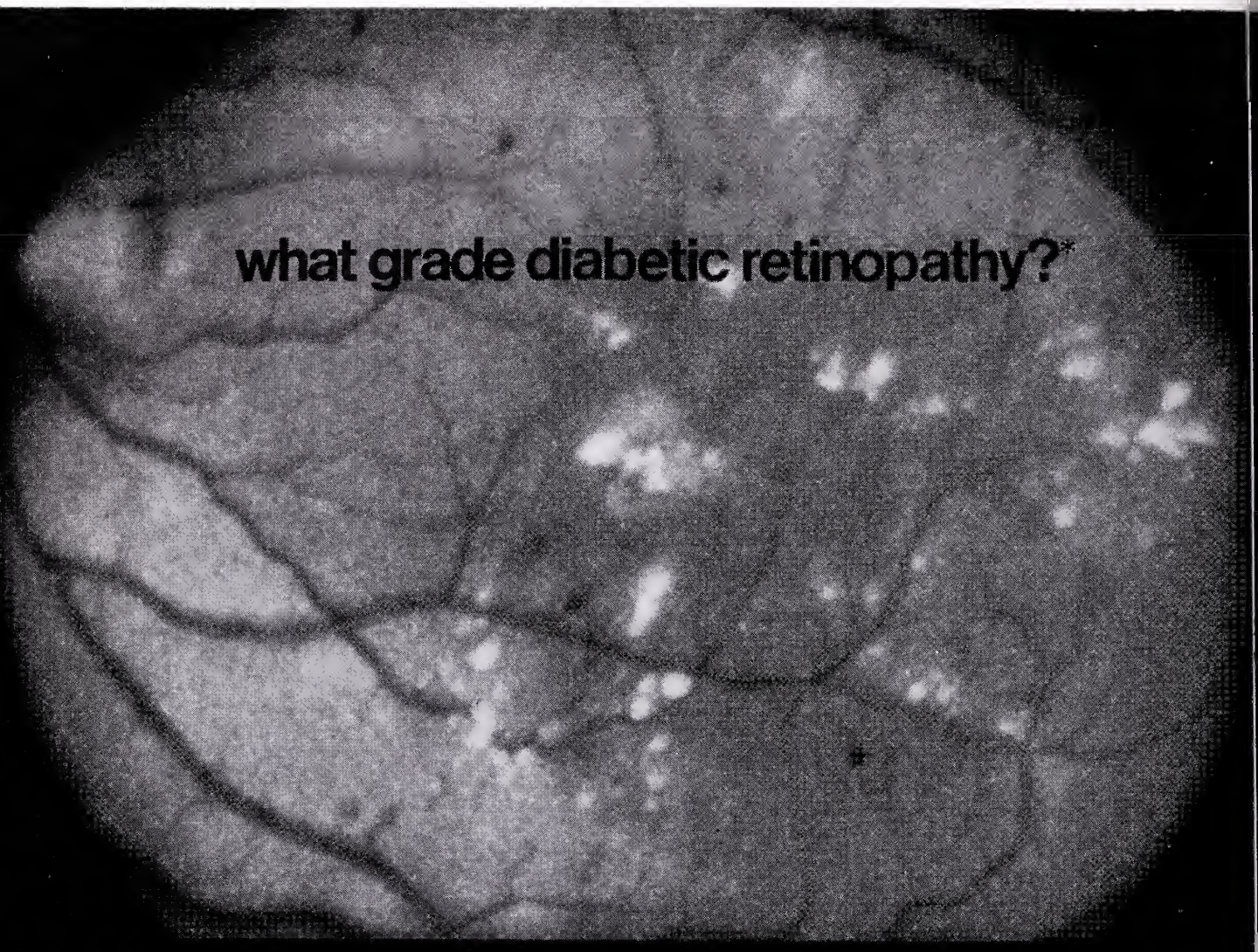

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"The history of science, and in particular the history of medicine... is... the history of man's reactions to the truth, the history of the gradual revelation of truth, the history of the gradual liberation of our minds from darkness and prejudice."

–George Sarton, from "The History of Medicine Versus the History of Art"

Should nongovernment scientists and physicians play a role in drug regulation?

Opinion

Results of a questionnaire to 7000 physicians:

82.8%
Physicians should play a role

78.3%
Independent scientists should play a role

69.8%
Medical academicians should play a role

Opinion & Dialogue

Dialog

Should nongovernment scientists and physicians play a role in drug regulation?

Doctor of Medicine

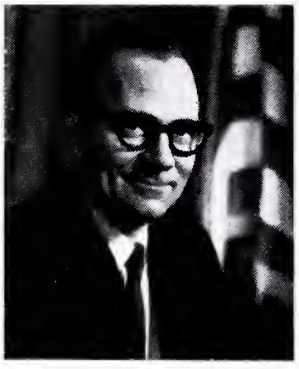
Herbert L. Ley, Jr., M.D., M.P.H., Formerly Commissioner, F.D.A. (1968-1969) Currently Medical Consultant

In order for drug regulation to be effective, participation in the regulatory process from nongovernment physicians and scientists must be encouraged. Without such involvement, there will continue to be a high degree of controversy surrounding any regulations promulgated by the Food and Drug Administration.

There are two areas in which participation and communication by nongovernment physicians and scientists could significantly improve the process of regulation. First, scientists and physicians throughout the country could become involved in consulting relationships with the Food and Drug Administration in important scientific areas while regulatory policies are being evolved. If nongovernment professionals could bring their expertise and experience to bear early in the decision-making process, they would have less reason to criticize the final outcome.

Secondly, practicing physicians, academic physicians, and academic-based scientists could make it their business to comment on proposed regulations appearing in the Federal Register. Ideally, a system could be instituted whereby medical, scientific and technical people could see the Federal Register regularly, and provide the Food and Drug Administration with a body of opinion that has so far gone unheard. The FDA is caught among pressures from industry, Congress, the Presidential Administration and consumers. It should also feel pressures from practicing physicians and scientists.

In order to become more involved in these stages of the drug regulatory process, nongovernment physicians and scientists should begin to exercise their influence through their respective professional organizations,



state and national medical societies, and specialty groups. Logically, a letter from these organizations representing a collective opinion has far greater weight in the regulatory process than individual letters. If the Food and Drug Administration receives opinions from these organizations early, before a regulation gets into the Federal Register, they are in a good position to respond with further study and review. Without such dissenting opinions, there is very little incentive to make changes in proposed regulations.

One instance in which practitioners did influence drug regulatory affairs in this way is the recent controversy that arose over the legitimacy of drug combinations. The strong opinion of practitioners on the value of such medication in clinical practice played a very prominent role in making the Food and Drug Administration modify its rather restrictive policy.

Another way in which practitioners can effectively influence drug regulations is by working with drug manufacturers conducting clinical trials of chemotherapeutic agents. When a drug is rated other than effective it may only mean that there is a lack of controlled clinical evidence as to efficacy. Thus, physicians might offer to conduct clinical studies that could help keep a truly effective drug in the marketplace. The treatment of diseases such as diabetes and angina are areas where the practitioner can aid in clinical studies because patients suffering from these diseases are rarely found in the conventional hospital setting.

By working with ethically and scientifically sound study designs in his everyday practice, the practitioner could begin to play an important part in determining official ratings on drug efficacy.

Nongovernment physicians and scientists and the FDA should also improve their lines of communication to the public. The medical community must develop a voice every bit as loud as that of the consumerists, the press, and others who sometimes criticize without complete information. If not, much of wh the medical communi *and* federal regulators will often be represented simplistic and somewh misleading terms.

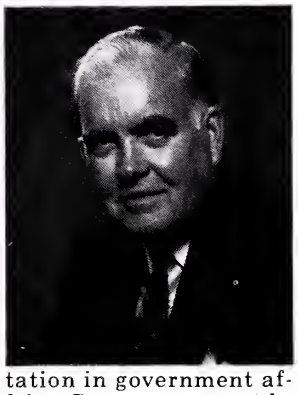
One illustration of t misuse of the media in th regard is the recall of an coagulant drugs sever years ago. This FDA acti was given publicity by th press and television th went far beyond its pro able importance. The resu was a very uncomfortab situation for the pract tioner who had patien taking these medication Since the practitioner ar pharmacist had not bee informed of the action b the time it was publicize in most states they wer deluged with calls fro worried patients.

The practitioner can a tempt to solve these prob lems of inadequate commu nication in several way One would be the creatio of a communications lir in state pharmacy societie When drug regulation new is to be announced, the s ciety could immediatel distribute a message to ev ery pharmacist in the stat The pharmacist, in turn could notify the physician in his local community s that he and the physicia could be prepared to an swer inquiries from pa tients. Another approac would be to use profes sional publications th practitioner receives.

All of this leads back t my opening contention: i drug regulation is to be ef fective, timely, and relate to the realities of clinica practice, a better method o communication and feed back must be developed be tween the nongovernmen tal medical and scientifi communities and the regu latory agency.

ıe

Maker of Medicine



Henry W. Gadsden, irman & Chief Executive fficer, Merck & Co., Inc.

n my opinion, it is the onsibility of all physi- s and medical scientists ake whatever steps they k are desirable in a law- regulation-making ess that can have far- ching impact on the ctice of medicine. Yet y events in the recent indicate that this is happening. For exam- , it is apparent from g efficacy studies that NAS/NRC panels gave e consideration to the lence that could have n provided by practic- physicians.

here are several current elopments that should rease the concern of cticing physicians about g regulatory affairs. One ne proliferation of mal- ctice claims and litiga- . Another is the effort government to establish relative efficacy of gs. This implies that if hysician prescribes a g other than the "estab- ed" drug of choice, he be accused of practic- something less than t-class medicine. It ld come perilously e to federal direction of medicine should be cticed.

n order to minimize this d of arbitrary federal ion, a way must be nd to give practitioners h voice and represen- tation in government affairs. Government must be caused to recognize the essentiality of seeking their views. One of the difficulties today, however, is that there is no way for concerned practitioners to participate in the early stages of decision-making processes. They usually don't hear about regulations until a proposal appears in the Federal Register, if then. By that time a lot of concrete has been poured, and a lot of boots are in the concrete.

Physicians in private practice, and particularly clinicians, should press for representation on the advisory committees of the Food and Drug Administration, joining with academic and teaching hospital physicians and scientists who are already serving. Though practitioners may not have access to all available information, the value of their clinical experience should be recognized. Clinicians, for example, rightly remind us that difficulty in *proving* precise effects does not necessarily mean a drug is ineffective.

Unless practitioners are more involved in drug regulations, it will be increasingly difficult for the pharmaceutical industry and scientists elsewhere to make optimal progress in drug development. The benefit/risk ratio must be re-emphasized, and as part of this it must be acknowledged that benefit can come from the judgments of medical science as a whole. Even this concept, unfortunately, is not always accepted in drug regulatory processes. For example, if current medical opinion holds that an excess of total lipids and cholesterol in the blood is probably predisposing to atherosclerosis, and if a drug is discovered which reduces total lipids and cholesterol, the drug ought to be accepted *prima facie* as a contribution to medical science . . . until someone disproves the theory. The sponsor should not have to prove the theory as well as to develop and test the drug.

I feel a major new effort must also be made to erase the feeling of mistrust of medicine and of medicines that seems to be growing in the public consciousness. Triggered primarily by strident announcements in Washington, people are reading and hearing confidence-shaking things almost continuously. Although challenge and awareness are essential to medical advancement, our long-term goal is constructively to build, not destroy. This means strengthening patient-physician relationships based on mutual confidence and trust. And in matters of health policy, it means working toward participatory rather than adversary proceedings—where everyone with an interest and a capacity to contribute has an opportunity to be heard . . . and, if that opportunity is not spontaneously afforded him, he may seek it.

Opinion & Dialogue

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15TH ANNUAL RUIDOSO SUMMER CLINIC
Chaparral Motel, Ruidoso, New Mexico
July 17-20, 1972

For further information, write: Mr. Bob Reid, Executive Secretary, New Mexico Chapter, American Academy of General Practice, P. O. Box 456, Sunland Park, New Mexico 88063.

Montana-Wyoming Chapter of the American College of Surgeons

ANNUAL MEETING
Jackson Hole, Wyoming
August 17-19, 1972

For further information, write: David E. Klein, MD, Secretary-Treasurer, Montana-Wyoming Chapter, American College of Surgeons, 1231 North 29th Street, Billings, Montana 59101.

American Academy of Orthopaedic Surgeons

KNEE IN SPORTS
Callaway Gardens, Pine Mountain, Georgia
May 29-31, 1972

For further information, write: Jack C. Hughston, MD, 105 Physicians Building, Columbus, Georgia 31901.

SPORTS MEDICINE
Eugene Hotel, Eugene, Oregon
July 24-26, 1972

For further information, write: Robert L. Larson, MD, 750 East 11th Avenue, Eugene, Oregon 97401.

UPPER EXTREMITY IN SPORTS
Americana Hotel, New York, New York
September 11-13, 1972

For further information, write: James A. Nicholas, MD, 150 East 77th Street, New York, New York 10021.

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FIFTH WESTERN HEMISPHERE CONGRESS
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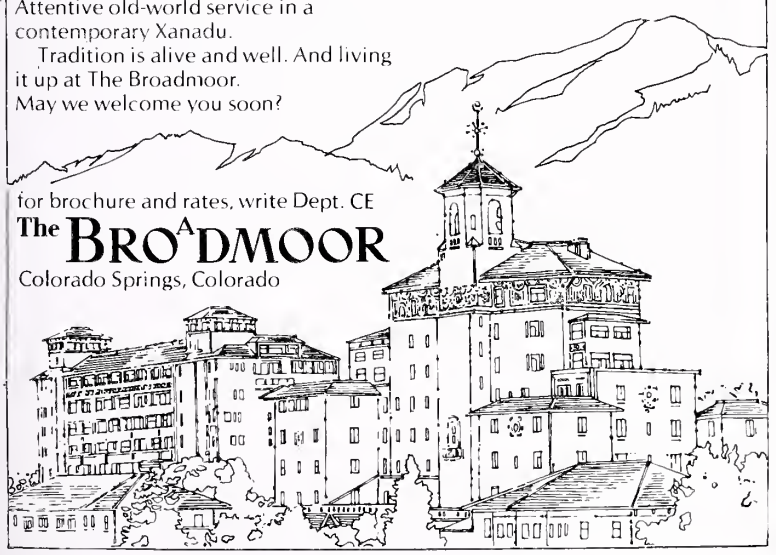

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For further information, write: Sidney L. Arje, MD, Coordinator, National Conference on Cancer Chemotherapy, c/o American Cancer Society, 219 East 42nd Street, New York, New York 10017.

American Association of Medical Clinics

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For further information, write: Edmond J. Lanigan, American Health Congress, 840 North Lake Shore Drive, Chicago, Illinois 60611.

American Association of Blood Banks and International Society of Blood Transfusion

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- ☐ **simethicone—for accompanying distension and pain due to gas**
- ☐ **phenobarbital—for associated anxiety and tension**

Composition: Each chewable, fruit-flavored, scored tablet contains: 16 mg. phenobarbital (warning: may be habit-forming); 0.1 mg. hyoscyamine sulfate; 0.02 mg. atropine sulfate; 0.007 mg. scopolamine hydrobromide; 40 mg. simethicone.
Contraindications: Hypersensitivity to barbiturates or belladonna alkaloids, glaucoma, advanced renal or hepatic disease.
Precautions: Administer with caution to patients with incipient glaucoma, bladder neck obstruction or urinary bladder atony. Prolonged use of barbiturates may be habit-forming.
Side effects: Blurred vision, dry mouth, dysuria, and other atropine-like side effects may occur at high doses, but are only rarely noted at recommended dosages.
Dosage: Adults: One or two tablets three or four times daily. Dosage can be adjusted depending on diagnosis and severity of symptoms. Children 2 to 12 years: One half or one tablet three or four times daily. Tablets may be chewed or swallowed with liquids.

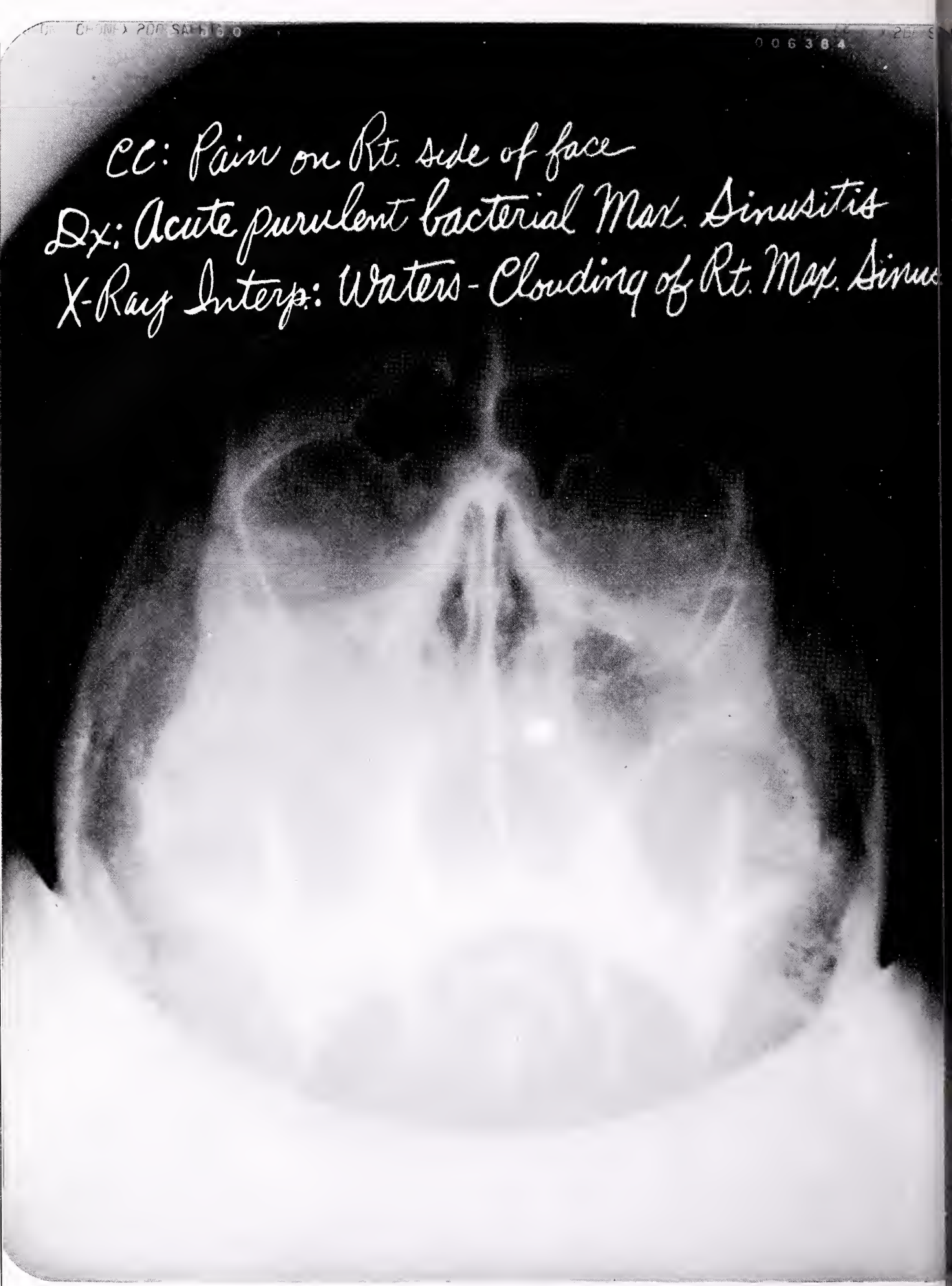
STUART PHARMACEUTICALS | Pasadena, California 91109 | Division of ATLAS CHEMICAL INDUSTRIES, INC.

(from the Greek **kinetikos,**
to move,
and the Latin **sedatus,**
to calm)

KINESED®

antispasmodic/sedative/antiflatulent

Spring peeper (tree frog, *Hyla crucifer*): this small amphibian can expand its throat membrane with air until it is twice the size of its head.



X-ray provided by Manhattan Eye, Ear and Throat Hospital

There are many frustrations in treating acute sinusitis.

Cleocin manages most of the bacterial ones.

Inadequate drainage, chronic rhinitis, allergy, exposure to temperature extremes, and other factors can delay recovery from acute sinusitis.

It's helpful to have an antibiotic like Cleocin HCl (clindamycin HCl hydrate, Upjohn) that can take care of most of the gram-positive bacterial problems related to the disease.

As one study* of 52 outpatients showed, acute maxillary sinusitis was associated with staphylococci in 50% of the group, with pneumococci in 25%, and with streptococci and various other organisms (chiefly gram-negative) in the remainder. Significantly, one-half of these staphylococcal infections were resistant to both penicillin and tetracycline (all were sensitive to erythromycin and chloramphenicol). Although not a part of this study, many other clinical and bacteriologic reports[1] have shown that such gram-positive bacteria, which most often are associated with acute sinusitis, are usually susceptible to Cleocin.

Can be taken before, with, or after meals

The total absorption of Cleocin is virtually unaffected by the presence of food in the GI tract.[1] Cleocin thus can be administered as prescribed without interfering with the patient's mealtimes.

Useful in patients hypersensitive to penicillin

Cleocin's chemical structure bears no relationship to penicillin or the cephalosporins. Cleocin therefore may be especially useful in patients with acute sinusitis who report a history of hypersensitivity to these antibiotics. Although hypersensitivity reactions have been uncommon with Cleocin, it should be used cautiously in atopic individuals. Cleocin is not recommended in the lincomycin-sensitive patient.

Please see following page for further prescribing information.

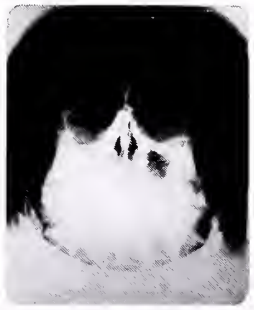
Cleocin® HCl 150 mg capsules

clindamycin HCl hydrate, Upjohn

Reynolds, R. C., et al.: Bull. Johns Hopkins Hosp. 114:269, 1964
Data on file, Medical Research Department, The Upjohn Company

©1971 The Upjohn Company

Side effects: In studies of 1,416 patients involving 92 clinical investigators, side effects were reported in 8.2%.[1] Diarrhea or loose stools were noted in 3% of these cases (one patient with bloody stools). In a few instances, diarrhea lasted several days. A slightly higher incidence of diarrhea or loose stools has been reported by some investigators in subsequent studies.



Toxicity: No irreversible hematologic, renal, dermatologic, or neurologic abnormalities have been reported.[1] Transient leukopenia and eosinophilia have been observe. Elevations of alkaline phosphatase and serum transaminases were observed in a few instance. As with other antibiotics, periodic liver function tests and blood counts should be performed during prolonged therap.

In acute sinusitis and other upper respiratory infections due to susceptible staphylococci, streptococci, and pneumococc.

Cleocin® HCl

clindamycin HCl hydrate, Upjohn

Each preparation contains:	Clindamycin HCl hydrate equivalent to clindamycin base
150 mg Capsules	150 mg
75 mg Capsules	75 mg

Cleocin (clindamycin, Upjohn) is a new semisynthetic antibiotic produced from the parent compound lincomycin and provides more *in vitro* potency, better oral absorption and fewer gastrointestinal side effects than the parent compound.

Cleocin HCl (clindamycin HCl hydrate) is indicated in infections of the upper and lower respiratory tract, skin and soft tissue, and, adjunctively, dental infections caused by gram-positive organisms which are susceptible to its action, particularly streptococci, pneumococci and staphylococci. As with all antibiotics, *in vitro* susceptibility studies should be performed.

CONTRAINDICATIONS: Patients previously found to be hypersensitive to this compound or to lincomycin.

WARNINGS: Safety for use in pregnancy not established. Not indicated in the newborn (infants below 30 days of age).

PRECAUTIONS: Prescribe with caution in atopic individuals. Perform periodic liver function tests and blood counts during prolonged therapy. The serum half-life in patients with markedly reduced renal function is approximately twice that in normal patients; hemodialysis and peritoneal dialysis do not effectively remove Cleocin from the blood. Therefore, with severe renal insufficiency, determine serum levels of clindamycin periodically and decrease the dose appropriately. Should overgrowth of nonsusceptible organisms—particularly yeasts—occur, take appropriate clinically indicated measures.

ADVERSE REACTIONS: Generally well tolerated in clinical efficacy studies. Side effects reported in 8.2% of 1,416 patients. Of the total, 6.9% reported gastrointestinal side effects and 1.3% reported other side effects. Diarrhea or loose stools were reported in 3%. *Gastrointestinal:* Symptoms included abdominal pain, nausea, vomiting and diarrhea or loose stools. In a few instances, diarrhea lasted for several days; one case of bloody stools was reported. *Hematopoietic:* Transient neutropenia (leukopenia) and eosinophilia have been reported; relationship to therapy is unknown. No irreversible hematologic toxicity has been reported. *Skin and Mucous Membranes:* Skin rash and urticaria have been reported infrequently. *Hypersensitivity Reactions:* A few cases of hypersensitivity reaction have been reported. If hypersensitivity occurs, discontinue drug and have available the usual agents (epinephrine, corticosteroids, antihistamines) for emergency treatment. *Liver:* Although no direct relationship of Cleocin HCl (clindamycin HCl hydrate) to liver dysfunction has been noted and significance of such change is unknown, transient abnormalities in liver function tests (elevations of alkaline phosphatase and serum transaminases) have been observed in a few instances. Also, abnormal liver function test values at the beginning of therapy have returned to normal during therapy.

DOSAGE AND ADMINISTRATION: *Adults:* Mild to moderately severe infections—150 to 300 mg every 6 hours. Severe infections—300 to 450 mg every 6 hours.

Children: Mild to moderately severe infections—8 to 16 mg/kg/day (4 to 8 mg/lb/day) divided into three or four equal doses. Severe infections—16 to 20 mg/kg/day (8 to 10 mg/lb/day) divided into three or four equal doses.

Note: With β-hemolytic streptococcal infections, treatment should continue for at least 10 days to diminish the likelihood of subsequent rheumatic fever or glomerulonephritis.

SUPPLIED: *150 mg Capsules*—Bottles of 16's and 100's. *75 mg Capsules*—Bottles of 16's and 100's. *Sensitivity Disks*—2 µg. *Sensitivity Powder*—Vials.

For additional product information, see your Upjohn representative or consult package insert. MED B-4-S (LNU-3) JA71-1565

The Upjohn Company, Kalamazoo, Michigan 49001 **Upjohn**

Publication rules and suggestions to authors

1. Who may submit articles. The Rocky Mountain Medical Journal ordinarily accepts only articles prepared by members of the state societies we serve and by guest speakers at their official meetings.

2. Method of preparation. All material for publication must be typewritten, double spaced, with liberal margins, using only one side of the paper, pages consecutively numbered, and preferably on standard 8½ x 11 white bond paper. Carbon copies are *not* acceptable.

Title (preferably short) and author's name, city and state must appear at the top of the first page. Second and subsequent pages should be identified with consecutive page numbers and author's surname. If physician authors possess more than one degree, the MD only is used. Lesser degrees of non-MD authors or co-authors may be used.

Please include beneath the title or at the top of the first page a brief paragraph stating what the article is designed to show and, therefore, why it should be read. This introductory feature is, in editorial parlance, called the "blurb"; it is printed in bold type.

3. Where to submit material. All copy must be sent to the editor for the state in which the material originates. Editors for each state, with their mailing addresses, are listed monthly on the Table of Contents page of the Journal.

4. Acceptance or rejection. The state editor will (1) tentatively accept the article, (2) return it to the author with suggestions for revision, or (3) reject it. He will edit and forward approved copy to the publication office in Denver for final editing and scheduling.

5. Order of publication. Ordinarily, articles will be published in the order received. Those whose value is seasonal, whose value would be lost if publication is delayed, or which reflect priority of original research, are given special consideration. State presidential addresses, programs, state society minutes, and timely organization announcements are given priority.

6. Length of articles. Scientific papers should be "boiled down" not to exceed ten pages of double-spaced typewritten standard 8½ x 11 inch sheets. Shorter papers are more acceptable to editors and readers, and earlier publication is probable. Every journal is in competition for the reader's time, and condensation is the order of the day. For this reason, and because of financial and space limitations, we request that copy be condensed to the greatest extent consistent with conveying the message.

7. Illustrations. A limited number of illustrations or "cuts," usually up to six, will ordinarily be accepted within our own publication budget if the editor believes they enhance the value of the article. Clear photos, simple diagrams or line drawings in black on white, printing rather than writing, reproduce well. Cuts should be mounted separately, and the paper or cardboard mounts should be the same size as that upon which the article is typed. Each should have its caption below: Fig. 1, Fig. 2, etc., with a short descriptive sentence. Authors will be billed our cost for excess above six cuts.

8. Tables. Tables should be simple, presenting only brief relevant data, amply spaced. They should be placed at the back of the manuscript on separate sheets. Each should have its number and title above: Table 1, Title; Table 2, Title; etc. Long, large, or complicated tables ordinarily are not acceptable.

9. Case reports. Case reports are popular with our readers. A brief introductory statement concerning the condition or disease, tells why the case is presented. The report follows with a separate heading, CASE REPORT or CASE 1, CASE 2, etc. Include only relevant, positive laboratory and other data. Names, initials, and numbers are unimportant; age, sex, and sometimes occupation are significant. Minimize dates; then make it month, date, year—as February 9, 1969; not 2/9/69. After the case presentation, review or sum it up under a heading such as Discussion, Comment, Summary or Conclusion.

10. Footnotes. Footnotes must be brief. One at the bottom of the first page should state the Society and date of presentation, and institutional origin, if any. Special titles or position of the author, acknowledgements, etc., will be added according to simplicity, editorial policy and discretion.

11. References. Reference lists rarely add to the value of an article for the majority of readers. We will make every effort to publish short reference lists, but long ones will be deleted. Incidentally, the proper heading is "References," not "Bibliography." The latter implies everything in the literature upon the subject. Make them uniform in style and brief, as: Jones, W. K.: Pyelonephritis in Infancy. JAMA 141:75. 1964.

12. Editorials. We would like to have more submitted by our State editors and the membership at large. Readers must get tired of thunder from publication headquarters in Denver; frankly, we do too! Speak out, and we'll sign your name, initials, or respect your request for anonymity, as you choose. If you don't like something we do or say, please let us in on it; we could even stand to hear about it if something happens to please you. A "Letter to the Editor" may help you get something off your mind. We're asking for it and we have a place to put it—in the Journal, that is!

13. Proofs. Galley proofs are submitted to the author, and prompt return is essential. Authors should correct typographical, grammatical, or rhetorical errors, but do not reinsert or rewrite sentences, paragraphs, tables, etc., which an editor may have deleted, condensed, or paraphrased. When an article reaches the galley-proof stage, the author may NOT re-edit his article; that is the privilege of the Journal's editors.

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T_4 IS THE PREDICTABLE HORMONE BECAUSE IT LOVES PROTEIN.

SYNTHROID® (sodium levothyroxine) is pure synthetic T_4, the major circulating thyroid hormone. It is reliable to use because of its affinity for protein-binding sites in the blood. T_3 is more fickle. Sometimes it binds. Sometimes it doesn't. T_4 more *predictably* binds to protein.

ALL THYROID-FUNCTION TESTS ARE USEFUL IN MONITORING SYNTHROID THERAPY

No calculations are needed, test interpretation is simple.

Any of the commonly used T_4 thyroid function tests (P.B.I., T_4 By Column, Murphy-Pattee, Free Thyroxine) are useful in monitoring patients on T_4 because they *all* measure T_4. Patients on SYNTHROID are thereby easy to monitor because their results will fall within predictable, elevated test ranges. Of course, clinical assessment is the best criterion of the thyroid status of the drug-treated patient.

TEST	HYPOTHYROID	SYNTHROID THERAPEUTIC NORMAL
P.B.I.	Less than 4 mcg %	6-10 mcg %
T_4 By Column	Less than 3 mcg %	7-9 mcg %
T_3 (Resin)	Less than 25%	27-35%
T_3 (Red Cell)	Less than 11%	11.5-18%
Free Thyroxine	Less than 0.7 nanograms %	0.7-2.5 nanograms %
Murphy-Pattee	Less than 2.9 mcg %	4-11 mcg %

TWO GOOD REASONS WHY THE ROAD TO NORMALIZED THYROID STATUS IS SO SMOOTH FOR THE SYNTHROID PATIENT.

(1) The onset of action of T_4 is gradual. It has a long in vivo "half-life" of over six days. (Occasional missed doses or accidental double-doses are of le concern because of this factor)[1]; (2) since SYNTHROID contains on T_4, the potential for metabolic surges traceable to more potent iodides (T_3) is eliminated.

AS WITH ANY THYROID PREPARATION, CAUTIOUS OBSERVATION OF THE PATIENT DURING THE BEGINNING OF THERAPY WILL ALERT THE PHYSICIAN TO ANY UNTOWARD EFFECTS.

Side effects, when they do occur, are related to excessive dosage. Caution should be exercised in administering the drug to patients with cardiovascular disease. Read the accompanying prescribing information for additional data or write Flint Laboratories.

Choose the Smooth Road ...to thyroid replacement therapy

ATIENTS CAN BE JCCESSFULLY AINTAINED ON A RUG CONTAINING HYROXINE ALONE.

yroxine (T_4) is, as you know, e major circulating hormone oduced by the thyroid gland. is also produced, in smaller iounts, and is active at the llular level. For years it has been working hypothesis among docrinologists that T_4 is nverted by the body to T_3. In 70 this process, called eiodination," was demonstrated Braverman, Ingbar, and Sterling[2]. does convert to T_3, though the ecise quantities are still being udied.

The conversion has been nically demonstrated during the ministration of T_4 to athyrotic tients. Their thyroid status is rmalized on SYNTHROID alone, t the presence of T_3 in these tients has been clearly shown.

WHY DOES SYNTHROID COST LESS THAN SYNTHETIC DRUGS CONTAINING T_3?

Very simple. T_3 costs more to make synthetically than does T_4. So it is economically necessary for a synthetic thyroid medication containing T_3 to cost more than one containing T_4 alone. Synthetic combinations cost patients nearly 50% more than SYNTHROID[3] because the T_3 costs more to start with; also there is the additional expense of formulating a tablet containing two active ingredients.

1. Latiolais, C. J., and Berry, C. C.: Misuse of Prescription Medications by Outpatients, *Drug Intelligence & Clin. Pharm.* 3:270-7, 1969.
2. Braverman, L. E., Ingbar, S. H., and Sterling, K.: Conversion of Thyroxine (T4) to Triiodothyronine (T3) in Athyreotic Human Subjects, *J. Clin. Invest.* 49:855-64, 1970.
3. American Druggist BLUEBOOK, March, 1971.

Synthroid®
sodium levothyroxine)

THE FACTS ARE CLEAR AND HERE S OUR OFFER.

ACTS:
ynthetic thyroid drugs are an nprovement over animal gland roducts. Patients, even athyrotic nes, can be completely aintained on SYNTHROID (T_4) one. Thyroid function tests are asy to interpret since they are *redictably* elevated when the atient adheres to SYNTHROID. f all synthetic thyroid drugs, YNTHROID is the most conomical to the patient.

E

OFFER:
Free TAB-MINDER medication dispensers to start or convert all your hypothyroid patients to SYNTHROID. Free information to physicians on role of thyroid function tests in a new booklet titled: "Guideposts to Thyroid Therapy." Ask us.

Name _____

Address _____

City _____ State _____ Zip _____

Indications: SYNTHROID (sodium levothyroxine) is specific replacement therapy for diminished or absent thyroid function resulting from primary or secondary atrophy of the gland, congenital defect, surgery, excessive radiation, or antithyroid drugs. Indications for SYNTHROID (sodium levothyroxine) **Tablets** include myxedema, hypothyroidism without myxedema, hypothyroidism in pregnancy, pediatric and geriatric hypothyroidism, hypopituitary hypothyroidism, simple (nontoxic) goiter, and reproductive disorders associated with hypothyroidism. SYNTHROID (sodium levothyroxine) **for Injection** is indicated for intravenous use in myxedematous coma and other thyroid dysfunctions where rapid replacement of the hormone is required. The injection is also indicated for intramuscular use in cases where the oral route is suspect or contraindicated due to existing conditions or to absorption defects, and when a rapid onset of effect is not desired.

Precautions: As with other thyroid preparations, an overdosage may cause diarrhea or cramps, nervousness, tremors, tachycardia, vomiting and continued weight loss. These effects may begin after four or five days or may not become apparent for one to three weeks. Patients receiving the drug should be observed closely for signs of thyrotoxicosis. If indications of overdosage appear, discontinue medication for 2-6 days, then resume at a lower dosage level. In patients with diabetes mellitus, careful observations should be made for changes in insulin or other antidiabetic drug dosage requirements. If hypothyroidism is accompanied by adrenal insufficiency, as Addison's Disease (chronic subcortical insufficiency), Simmonds's Disease (panhypopituitarism) or Cushing's syndrome (hyperadrenalism), these dysfunctions must be corrected prior to and during SYNTHROID (sodium levothyroxine) administration. The drug should be administered with caution to patients with cardiovascular disease; development of chest pains or other aggravations of cardiovascular disease requires a reduction in dosage.

Contraindications: Thyrotoxicosis, acute myocardial infarction. **Side effects:** The effects of SYNTHROID (sodium levothyroxine) therapy are slow in being manifested. Side effects, when they do occur, are secondary to increased rates of body metabolism; sweating, heart palpitations with or without pain, leg cramps, and weight loss. Diarrhea, vomiting, and nervousness have also been observed. Myxedematous patients with heart disease have died from abrupt increases in dosage of thyroid drugs. Careful observation of the patient during the beginning of any thyroid therapy will alert the physician to any untoward effects.

In most cases with side effects, a reduction of dosage followed by a more gradual adjustment upward will result in a more accurate indication of the patient's dosage requirements without the appearance of side effects.

Dosage and Administration: The activity of a 0.1 mg. SYNTHROID (sodium levothyroxine) TABLET is equivalent to approximately one grain thyroid, U.S.P. Administer SYNTHROID tablets as a single daily dose, preferably after breakfast. In hypothyroidism without myxedema, the usual initial adult dose is 0.1 mg. daily, and may be increased by 0.1 mg. every 30 days until proper metabolic balance is attained. Clinical evaluation should be made monthly and PBI measurements about every 90 days. Final maintenance dosage will usually range from 0.2-0.4 mg. daily. In adult myxedema, starting dose should be 0.025 mg. daily. The dose may be increased to 0.05 mg. after two weeks and to 0.1 mg. at the end of a second two weeks. The daily dose may be further increased at two-month intervals by 0.1 mg. until the optimum maintenance dose is reached (0.1-1.0 mg. daily).

Supplied: Tablets: 0.025 mg., 0.05 mg., 0.1 mg., 0.15 mg., 0.2 mg., 0.3 mg., 0.5 mg., scored and color-coded, in bottles of 100, 500, and 1000. Injection: 500 mcg. lyophilized active ingredient and 10 mg. of Mannitol, N.F., in 10 ml. single-dose vial, with 5 ml. vial of Sodium Chloride Injection, U.S.P., as a diluent. SYNTHROID (sodium levothyroxine) **for Injection** may be administered intravenously utilizing 200-400 mcg. of a solution containing 100 mcg. per ml. If significant improvement is not shown the following day, a repeat injection of 100-200 mcg. may be given.

FLINT LABORATORIES
DIVISION OF TRAVENOL LABORATORIES, INC
Morton Grove, Illinois 60053

Last week he got three new clients, four rush orders, and constipation.

More often than not, simple constipation is a by-product of the frantic pace of modern life. The natural urge to move one's bowels is subjugated to business and other pressures and, gradually, the normal defecation reflex is lost through habitual neglect. Along with other indicated measures, FLEET® ENEMA can help "bring back the urge." It relieves acute constipation within 2 to 5 minutes—far faster than suppositories or soapsuds enemas and without the irritation and burning they can cause. More physio*logical* in its evacuation pattern than oral laxatives, it is less likely to disturb normal bowel function. And what could be simpler to use. No preparation. No fuss. No cleanup. FLEET ENEMA. It could keep success from spoiling your constipation-prone patients.

Warning: Frequent or prolonged use of enemas may result in dependence. Take only when needed or when prescribed by a physician. Do not use when nausea, vomiting, or abdominal pain is present. **Caution:** Do not administer to children under two years of age unless directed by a physician.

The professional aid to constipation relief

fleet® pharmaceuticals C. B. FLEET CO., INC., Lynchburg, Va. 24505

Will his return to work mean the return of undue psychic tension?

When it's mandatory to keep the post-coronary patient calm, consider Valium (diazepam).

Although he's promised to take it easy back on the job, you know he's going back to the same stressful circumstances that may have contributed to his hospitalization. If he experiences excessive anxiety and tension because of overreaction to stress, your prescription for Valium can bring relief. During the period of readjustment Valium can quiet undue anxiety.

For moderate states of psychic tension, 5-mg or 2-mg Valium tablets *b.i.d.* to *q.i.d.* can usually provide reliable relief. For severe tension/anxiety states, the 10-mg tablets often produce desired results.

The most commonly reported side effects are drowsiness, ataxia and fatigue. Until individual response is determined, caution patient against driving or operating dangerous machinery.

Valium® (diazepam)

For the tense cardiac patient who must be kept calm

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

Dosage: Individualize for maximum beneficial effect. *Adults*: Tension, anxiety and psychoneurotic states, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed; adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d.; adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. *Geriatric or debilitated patients*: 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) *Children*: 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

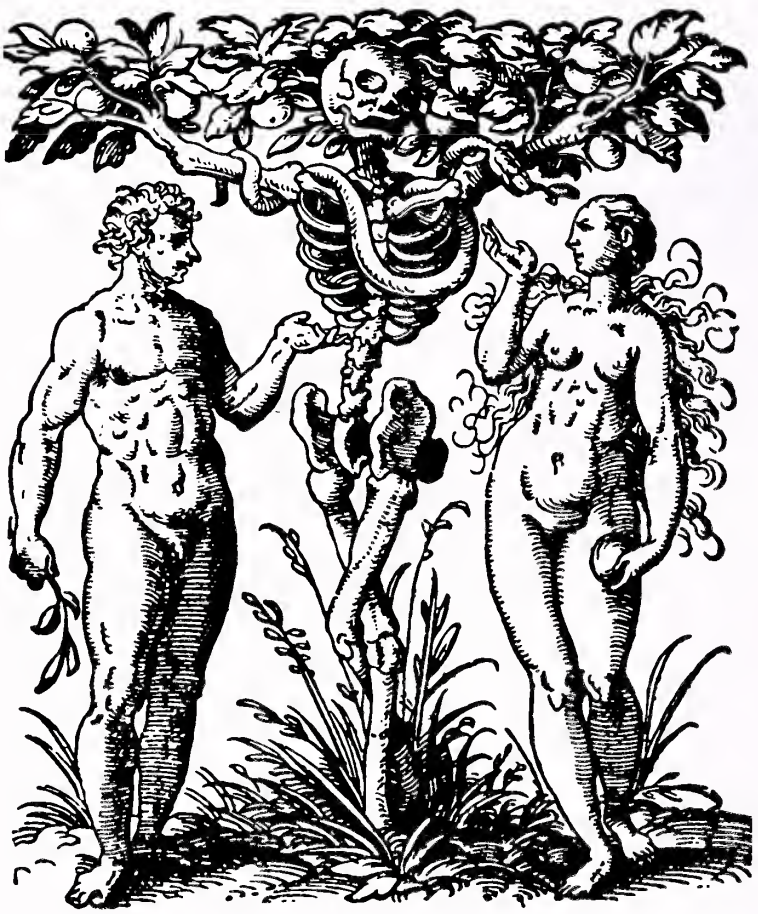
Supplied: Valium® (diazepam) Tablets, 2 mg, 5 mg and 10 mg; bottles of 100 and 500. All strengths also available in Tel-E-Dose® packages of 1000.

ROCHE

Roche Laboratories
Division of Hoffmann-La Roche Inc.
Nutley, N.J. 07110

In acute gonorrhea

(urethritis, cervicitis, proctitis when due to susceptible strains of N. gonorrhoeae)



Sterile Trobicin®
(spectinomycin dihydrochloride pentahydrate)—For Intramuscular injections, 2 gm vials containing 5 ml when reconstituted with diluent. 4 gm vials containing 10 ml when reconstituted with diluent.
An aminocyclitol antibiotic active *in vitro* against most strains of *Neisseria gonorrhoeae* (MIC 7.5 to 20 mcg/ml). Definitive *in vitro* studies have shown no cross resistance of *N. gonorrhoeae* between Trobicin and penicillin.

Indications: Acute gonorrheal urethritis and proctitis in the male and acute gonorrheal cervicitis and proctitis in the female when due to susceptible strains of *N. gonorrhoeae*.

Contraindications: Contraindicated in patients previously found hypersensitive to Trobicin. Not indicated for the treatment of syphilis.

©1972 The Upjohn Company

Warnings: Antibiotics used to treat gonorrhea may mask or delay the symptoms of incubating syphilis. Patients should be carefully examined and monthly serological follow-up for at least 3 months should be instituted if the diagnosis of syphilis is suspected.

Safety for use in infants, children and pregnant women has not been established.

Precautions: The usual precautions should be observed with atopic individuals. Clinical effectiveness should be monitored to detect evidence of development of resistance of *N. gonorrhoeae*.

Adverse reactions: The following reactions were observed during the single-dose clinical trials: soreness at the injection site, urticaria, dizziness, nausea, chills, fever and insomnia.
During multiple-dose subchronic tolerance studies in normal human volunteers, the following were noted: a decrease in hemo-

Trobicin®

sterile spectinomycin dihydrochloride pentahydrate, Upjohn

single-dose intramuscular treatment

High cure rate:* 96% of 571 males, 95% of 294 females
(Dosages, sites of infection, and criteria for diagnosis and cure are defined below.)**

Assurance of a single-dose, physician-controlled treatment schedule

No allergic reactions occurred in patients with an alleged history of penicillin sensitivity when treated with Trobicin, although penicillin antibody studies were not performed

Active against most strains of Neisseria gonorrhoeae in vitro (M.I.C. 7.5-20 mcg/ml)

A single two-gram injection produces peak serum concentrations averaging about 100 mcg/ml in one hour (average serum concentrations of 15 mcg/ml present 8 hours after dosing)

Note: Antibiotics used in high doses for short periods of time to treat gonorrhea may mask or delay the symptoms of incubating syphilis. Since the treatment of syphilis demands prolonged therapy with any effective antibiotic, and since Trobicin is not indicated in the treatment of syphilis, patients being treated for gonorrhea should be closely observed clinically. Monthly serological follow-up for at least 3 months should be instituted if the diagnosis of syphilis is suspected. Trobicin is contraindicated in patients previously found hypersensitive to it.

*Data compiled from reports of 14 investigators. **Diagnosis was confirmed by cultural identification of *N. gonorrhoeae* on Thayer-Martin media in all patients. Criteria for cure: negative culture after at least 2 days post-treatment in males and at least 7 days post-treatment in females. Any positive culture obtained post-treatment was considered evidence of treatment failure even though the follow-up period might have been less than the periods cited above under "criteria for cure" except when the investigator determined that reinfection through additionol sexual contacts was likely. Such cases were judged to be reinfections rather than relapses or failures. These cases were regarded as non-evaluatable and were not included. JA72 1848-6

globin, hematocrit and creatinine clearance; elevation of alkaline phosphatase, BUN and SGPT. In single and multiple-dose studies in normal volunteers, a reduction in urine output was noted. Extensive renal function studies demonstrated no consistent changes indicative of renal toxicity.

Dosage and administration: Keep at 25°C and use within 24 hours after reconstitution with diluent.
Male—single 2 gram dose (5 ml) intramuscularly. Patients with gonorrheal proctitis and patients being re-treated after failure of previous antibiotic therapy should receive 4 grams (10 ml). In geographic areas where antibiotic resistance is known to be prevalent, initial treatment with 4 grams (10 ml) intramuscularly is preferred.
Female—single 4 gram dose (10 ml) intramuscularly.

How supplied: *Vials, 2 and 4 grams—with ampoule of Bacteriostatic Water for Injection with Benzyl Alcohol 0.9% w/v.* Reconstitution yields 5 and 10 ml respectively with a concentration of spectinomycin dihydrochloride pentahydrate equivalent to 400 mg spectinomycin per ml. For intramuscular use only.
Susceptibility Powder—for testing *in vitro* susceptibility of *N. gonorrhoeae*.

Human pharmacology: Rapidly absorbed after intromuscular injection. A two-gram injection produces peak serum concentrations averaging about 100 mcg/ml at one hour with 15 mcg/ml at 8 hours. A four-gram injection produces peak serum concentrations averaging 160 mcg/ml at two hours with 31 mcg/ml at 8 hours.
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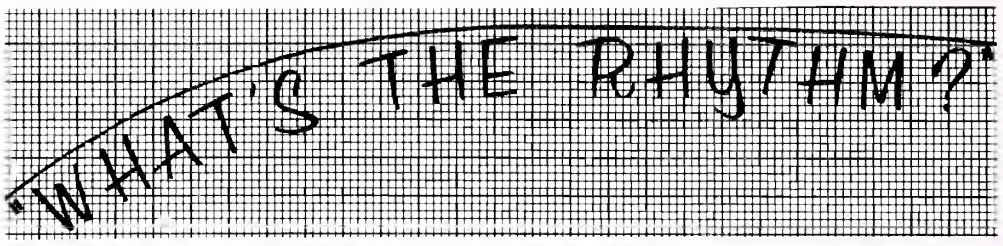


Prepared by Gerald A. Diettert, MD, Missoula, Montana

A systematic approach is a necessity in the diagnosis of arrhythmias, particularly when they are complex. Ladder diagrams are helpful in solving problem arrhythmias and describing arrhythmia physiology. Often their use quickly leads to a solution, while other methods fail to illustrate the complete process.

Since ladder diagrams are schematic, it is necessary to know the proper symbols:

• = origin of the depolarization wave

\ = depolarization wave course and speed

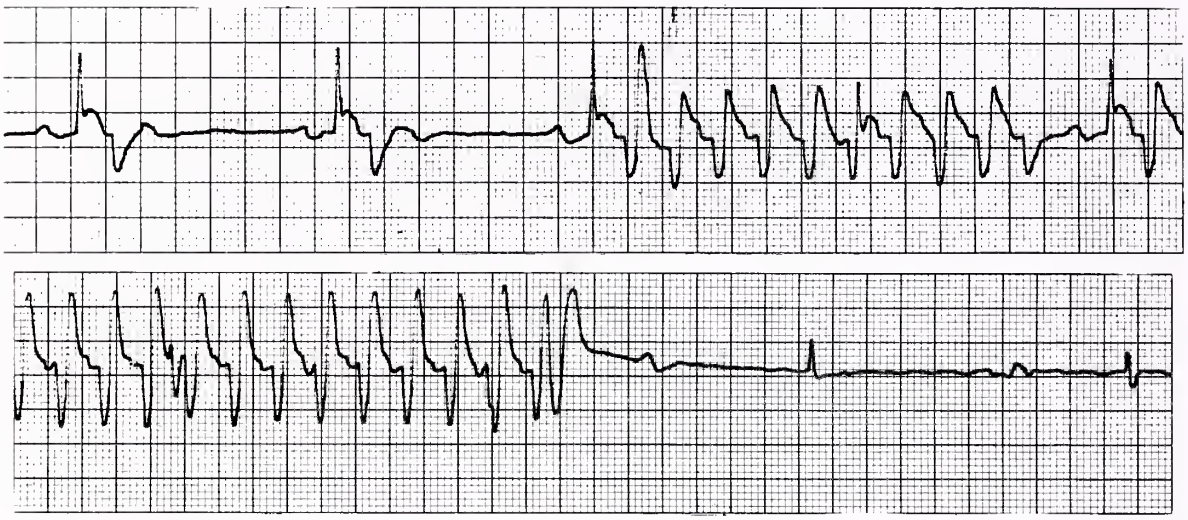
⟍ = termination of the depolarization wave

SN = sinus node

A = atrium

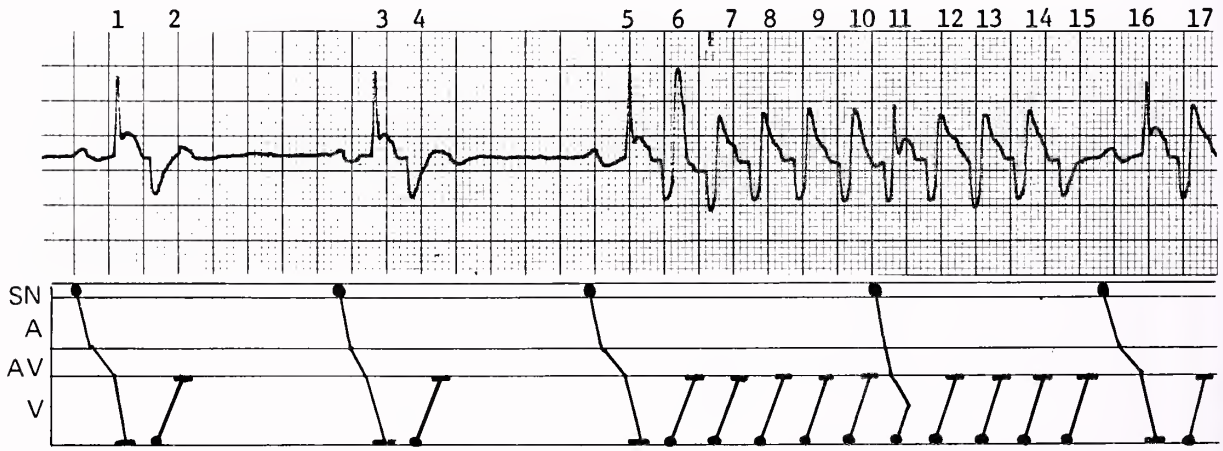
AV = junctional tissue

V = ventricle



Using ladder diagrams, try analyzing these two rhythm strips obtained on two different days in a patient with an acute inferior myocardial infarction.

These unusual rhythm strips illustrate the importance of correlating supraventricular and ventricular activity to arrive at a sound arrhythmia diagnosis. In the first strip, there are two sinus beats, 1 and 3, each followed by a peculiar "humped" ST segment and a broad, different-looking QRS complex, 2 and 4. Are 2 and 4 VPC's or APC's with aberrant ventricular conduction? Could a P wave be causing the "humped" ST segment?

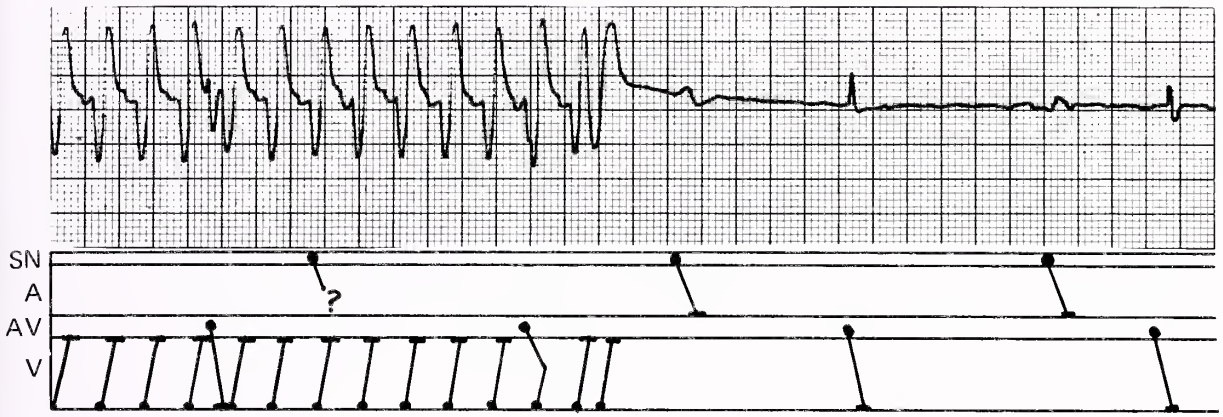


QRS 5 is similar to 1 and 3, and QRS 6 resembles 2 and 4 but has a high peaked R wave. A regular tachycardia follows, with QRS complexes similar to QRS 6. Midway through this tachycardia, QRS 11, with a sharper, spiked R wave, resembles the previous sinus beats.

The short bout of tachycardia ends with QRS 15, resembling premature beats 2 and 4, having no terminal high R wave. Sinus beat 16, resembling early sinus beats, comes in right on time. Premature beat 17 resembles the QRS complexes of the tachycardia.

Is this an atrial or ventricular tachycardia? If a regular sinus rhythm can be shown to persist through the bout of tachycardia, then the tachycardia is certainly ventricular in origin. On close inspection of the tracing, using calipers, QRS complex 11 can be identified as a fusion beat of both a sinus and ventricular depolarization wave. The sharp-pointed R wave and the following peculiar "humped" ST segment identify it as supraventricular in origin.

In this strip, then, ventricular tachycardia is diagnosed by the presence of a coexisting, independent sinus rhythm which continues regularly during and after the bout of tachycardia. This also identifies the premature beats as VPC's rather than apc's with aberrant ventricular conduction.



In the second rhythm strip, the same phenomenon occurs but this time the ventricular tachycardia is associated with sinus bradycardia, complete A-V block and a junctional escape rhythm. The junctional escape beats can be traced back through the tachycardia, and come in right on time. Although they are not evident, the slow sinus P waves probably also are present during the tachycardia. This unusual strip shows three independent pacemaker foci functioning simultaneously.

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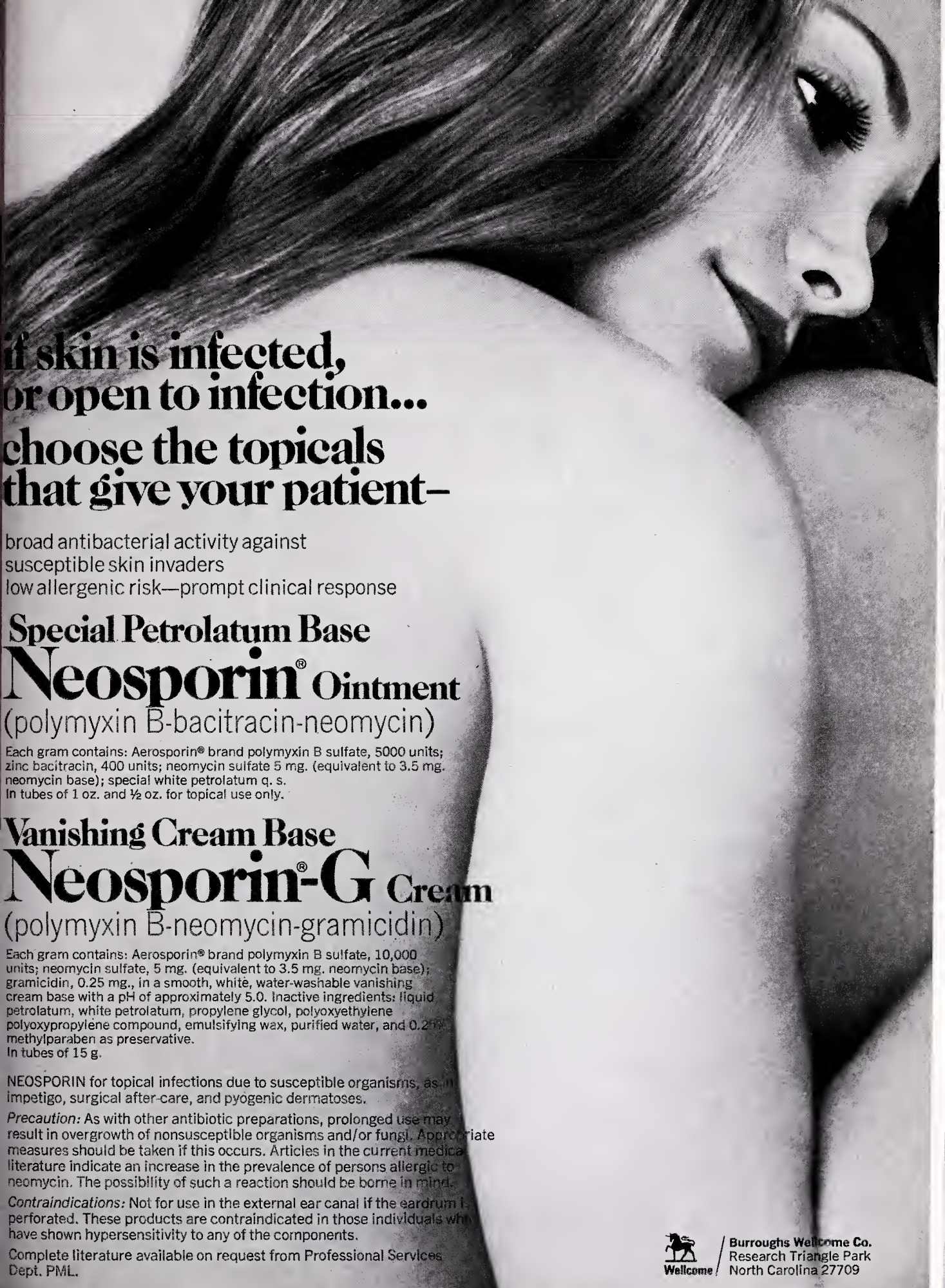

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MEDICAL SCHOOL NOTES

University of Nevada School of Medical Sciences

The new Fred M. Anderson Health Sciences Building was dedicated at the University of Nevada, Reno.

Dr. William A. O'Brien III, a Reno physician and early advocate of the School of Medical Sciences at the University, gave the main address of the dedication ceremony. The Board of Regents head the list of dignitaries expected to attend; others include the Advisory Committee of the School of Medical Sciences; Chancellor Neil D. Humphrey; Dr. N. Edd Miller, president of the University of Nevada, Reno; Dr. Wesley W. Hall, president of the American Medical Association; and Dr. William D. O'Gorman of Las Vegas, president of the Nevada State Medical Association. Harold Jacobsen, chairman of the Board of Regents, and Dr. George T. Smith, dean of the School of Medical Sciences, will introduce special guests.

Dr. Anderson, the Reno surgeon for whom the building is named, and his family are to be honored during the dedication ceremony. Dr. Anderson, a regent since 1956, has for many years been in the forefront of the movement to start the Nevada medical school.

Cost of the building, including some equipment, is $946,000. It is financed by grants to the School of Medical Sciences by the National Institutes of Health, Federal Department of Health, Education and Welfare, $586,057; the W. K. Kellogg Foundation, $60,000; and by non-appropriated university funds of $300,000.

Additional gifts are being sought for more equipment and furnishings. The one-story, rectangular building of pre-cast concrete consists of 24,120 square feet. A self-teaching center and individual carrells for use 24 hours a day will permit students to progress and review according to their separate needs. Audio-visual equipment such as cassettes, tapes, and slide trays will be available for replay of lectures, demonstrations, and other material. Access to computer services through remote terminals and to the new Health Sciences (closed-circuit) Television Subsystem is also to be provided. There are nine large laboratories, nine small laboratories, nine offices for staff, and a seminar room, eight animal rooms, two freezers, two coolers, and emergency shower and steam cleaning room.

Dean Smith said the new building is a "vital link in the 'medical school without walls' which utilizes community health care facilities in many parts of the state, in lieu of an expensive university hospital."

* * * * *

Sunrise Hospital in Las Vegas and Rose deLima Hospital in Henderson became officially associated with the new School of Medical Sciences in early April. Dignitaries from the University of Nevada, Reno and the two southern Nevada hospitals formalized the first linking between the School and hospitals outside the Reno area. Other hospitals in Las Vegas, including Southern Nevada Memorial Hospital, as well as other hospitals throughout the state are expected to be added soon. The Medical School also has affiliation agreements with Washoe Medical Center, St. Mary's Hospital, and the Veterans Administration Center, all in Reno.

Dr. George T. Smith, dean of the School of Medical Sciences, said approximately ten students, most of them southern Nevada residents, will serve "preceptorships" in Clark County hospitals this summer. This program will allow first-year medical students to gain valuable practical experience under the guidance of local physicians. Officials said there also will be frequent exchanges of students, campus-based faculty, and part-time teaching doctors during the regular school year. About 40 Las Vegas area physicians plan to participate in the program.

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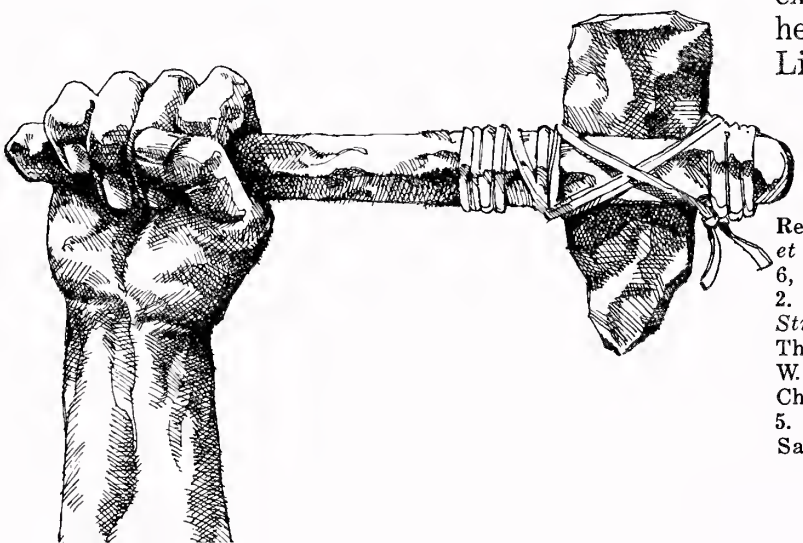
IF MORE MEN CRIED

At least seventy-five out of one hundred adults with duodenal ulcers are men.[1] Why? It may be significant that duodenal ulcer patients tend to crave recognition and are especially vulnerable when their manly assertive independence is threatened.[2]

Hypersecretion—an atavistic response. One investigator, who has studied the personalities of duodenal ulcer patients, wonders if masculine competitiveness is related to man's atavistic urge to devour his adversary. It is striking, he reports, that an accentuation of gastric acid secretion and motility can be induced in patients with ulcers by discussions that stimulate feelings of inadequacy, frustration and resentment.[2]

By chance? A lean, hungry lot. Was the link between emotions and gastric hyperacidity acquired through mutation to serve a purpose? During man's jungle period of evolution, the investigator points out, a male dealt with a foe by killing and devouring it. He concludes that it may be more than coincidence that peptic ulcer patients appear to be a lean, hungry, competitive group.[3]



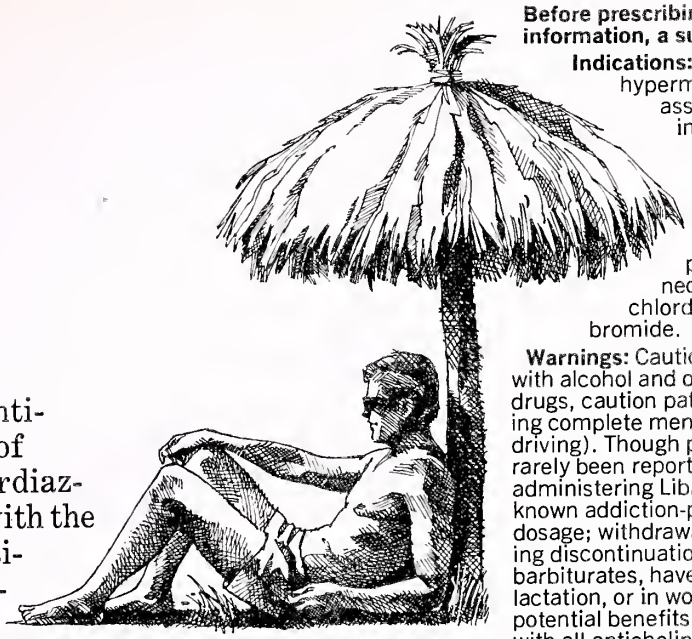
Big boys don't cry. If more men crie maybe fewer would wind up with duoden ulcers. But men will be men—the sum total their genes and what the are taught. According another clinician, when mother admonishes her so who has hurt himself tha big boys don't cry, she teaching him stoicism Crying is the negation everything society think of as manly. A boy star defending his manhood an early ag

Take away stres you can take away symptom.

There is no question that stress plays role in the etiology of duodenal ulcer. Or prominent physician[5] has observed that mar a man with an ulcer loses his symptoms th day he shuts up the office and starts out on vacation. The problem is, the type of ma likely to have an ulcer is the type least likel to take long vacations or take it easy at worl

The rest cure vs. the two-way action Librax®. For most patients, the rest cure as unrealistic as it is desirable. Still, th excessive anxiety must be dealt with. An here is where the dual action of adjunctiv Librax can help. Librax is the only drug tha

References: 1. Silen, W.: "Peptic Ulcer," in Wintrobe, M. M *et al.* (eds.): *Harrison's Principles of Internal Medicine*, e 6, New York, McGraw-Hill Book Company, 1970, p. 144 2. Wolf, S., and Goodell, H. (eds.): *Harold G. Wolff Stress and Disease*, ed. 2, Springfield, Ill., Charles Thomas, 1968, pp. 68-69. 3. *Ibid.*, p. 257. 4. Schottstaed W. W.: *Psychophysiologic Approach in Medical Practic* Chicago, Ill., The Year Book Publishers, Inc., 1960, p. 16 5. Alvarez, W. C.: *The Neuroses*, Philadelphia, Pa., W. Saunders Company, 1951, p. 384.



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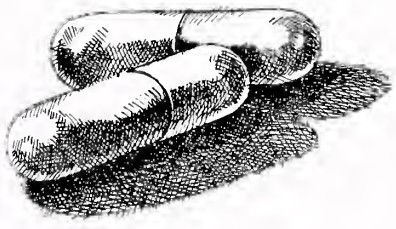
Librax: It can't change man's nature. But it can usually make it easier for men to cope with the discomfort of stress—both psychic and gastric—that can precipitate and exacerbate the symptoms of duodenal ulcer.



Before prescribing, please consult complete product information, a summary of which follows:

Indications: Symptomatic relief of hypersecretion, hypermotility and anxiety and tension states associated with organic or functional gastrointestinal disorders; and as adjunctive therapy in the management of peptic ulcer, gastritis, duodenitis, irritable bowel syndrome, spastic colitis, and mild ulcerative colitis.

Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (e.g., excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

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"ALL I WANT IS TO care for the sick as I have done in the past—let someone else worry about the health care delivery system," argued a capable physician friend of mine as he sat in my office fuming over the latest Medicare directive he had recently received.

How Not to Succeed — No How! No Way!

I could not help but feel sympathy for his cause since I know him to be totally devoted to high quality care of his patients. I could not express compassion, however, since I also know him to be totally uninvolved with the socio-economic problems confronting organized medicine—problems directly related to whether or not he may continue to provide quality care for his patients. In the doctors' lounge he is vehement in criticism of the American Medical Association and organized medicine in general. He is, of course, reluctant to accept majority decisions reached by those of our local medical society at meetings he "hasn't time" to attend unless by chance those decisions should reflect his views.

Both he and I share the same desire—that in our country good medical care shall be available to all. The basic difference between us is that he is unwilling to fight effectively to preserve it. To me, it is clearly evident that we are in a period of turmoil and uncertainty brought about mainly as a result of the voting public (our patients) who by a majority decision have decreed that our medical services shall be an inalienable right to be received without stigma of charge. This does not necessarily imply that medical care will degenerate or that physicians of the future need have less than total devotion to the practice of medicine; it does imply that our manner of providing care will be altered drastically. Whether this will, in the final balance, be good or bad may depend to a great extent on how much effort we exert in meeting the challenge of these changing attitudes.

The principles of a good medical care delivery system need not be subservient to bureaucratic welfare state concepts if an aggressive attitude is assumed by a strong majority of we physicians who are willing to devote time and effort in behalf of protecting them. Do we not owe our patients just as much effort in this regard as we would offer them in treating their illness?

No bad idea is ever overcome by attacking the person who proposes it. A physician standing on the sidelines who is unwilling to be part of and governed by a majority decision—who is unwilling to meet with others to discuss the problem and who at the same time throws brickbats at those he dislikes—creates the disunity that those who would destroy our cause hope for. A profession united within the confines of our existing medical organization and therein expressing opinions known to represent a strong majority of physicians will be heard by a concerned public. If democracy is to prevail, we will then be listened to by our congressmen. I am convinced that in this time of crisis we owe our patients whatever time and effort is necessary to insure that they have an adequate health care delivery system. How can they receive good medical care otherwise?

When my physician friend asked, "How do you propose to alter this rush toward bureaucratic socialism?", I could only answer by quoting Edmond Burke who so aptly said, "The only thing necessary for the triumph of evil is that good men do nothing."

J. Pfaff, Jr., MD
President
Montana Medical Association

What Price Favor?

INCONGRUITY SEEMS TO PREVAIL. Physicians historically are expected to predicate action on fact. Deductive reasoning is taught the pre-med student as a means of avoiding the horrendous hazards of inductive reasoning, except as a research tool. Research is conducted along guidelines which strictly prohibit the application of untested methods except under limited circumstances for purposes of gaining information. This time-honored approach seems to be forgotten as the profession is stampeded into endorsing bureaucratic fantasization in health care delivery systems.

The coffee room gossip for the day recites the results of some poll supposedly proving statistically that the medical profession has fallen several points in public favor. Someone mentions a new government control thrust upon doctors. The almost automatic supposition of the assembled doctors is that we must rush out and again regain public favor and forestall government control by pleasing the public and appeasing the government. We are stampeded as a cattle herd hearing a gunshot. We should use more reason than a cattle herd and control our fears rather than run carelessly into unknown areas. We should, but we may not!

We know that the government has seized upon H.M.O.'s as a favorite child. We know that the public finds in them an acceptable suggestion in some areas. The profession endorses the concept and commences to nibble the bait of a new, unproven health delivery concept. We listen to recitations of success in H.M.O.'s that in fact are not remarkable successes. Most of the experience in these plans is with select low risk health groups with a very small per cent of our country's population. We ignore the fact that the director of one of the oldest H.M.O.'s has quit, disillusioned about the whole system

Many doctors urged Congress to appropriate large sums of money to establish H.M.O.'s as though they were a substantiated success rather than the research project they actually are. Some have taken steps to initiate such plans without statistical information concerning the need. Doctors should apply scientific appraisal as they would a disease process. We should demand biostatistically valid facts about the health of people under group care systems. We should thoroughly understand and appraise maintenance of standards of excellence of the profession if such systems were adopted on a widespread basis.

Another day in the coffee room we hear about the latest proposed "Allied Health Professions" group. We read government statistics about the doctor shortage. We ignore the fact that more often than not five surgeons are competing for each case we have to refer for general surgery. We certainly would not vocalize that doctors should be located in areas by need. We ignore those doctors who we know would like to have more licensed office help so that they could work half days instead of full days. We forget that the basic medical school council emphasized the importance of competent physical examination to find obscure disease. We think of the relief it would be to delegate well-baby and routine physical exams to paramedical personnel. Again we stampede like a herd of cattle. Only when something jars us like the comments on the floor of the last AMA House of Delegates meeting do we come to our senses. At that time the suggested list of authorized urologic assistant responsibilities was read. It appeared that the list encompassed more than most physicians could claim competence in, physicians with many times the years of training of the urologic assistant. Many urologic and other assistants are already functioning well at their levels of competency. Then there are those who argue that well-baby exams are an economic necessity for practitioners and a corresponding hardship which draws heavily on the financial resources of young families. If they are justifiable time expenditures, why? On what basis? Let us determine what must be accomplished by these exams. Let us not get jarred to our senses by a group of tragic consequences resulting from care rendered by inadequately trained people. Much of the pressure for doctors' assistants arises not in need, but in unsubstantiated assumed need. We should meet the need in an acceptable manner only after the need is proven!

Do you agree? If you disagree, is it because the newspaper told you that we need these things and "everybody" thinks so these days? Or do you have an opinion arrived at by the same kind of thinking that you would use to diagnose and treat disease—fact based on fact, followed by previously and consistently demonstrated, efficacious response to fact? I do not know what the ultimate success of the various group health, health assistant, and other new health delivery schemes will be. I know that until someone demonstrates to me that my patients will be healthier than they are right now, I will not seek public favor by changing to an unproven health plan.

Hollis K. Lefever, MD
President-Elect
Montana Medical Association

Deadlines!

SOME WOULD CLAIM the wheel as man's most significant advance. Others might point to such achievements as the printing press, the internal combustion engine, or the control of atomic fission. My choice, however, is the deadline. Without deadlines, I fear our accomplishments would be few.

The *Rocky Mountain Medical Journal* has deadlines. The deadline for this Montana Editor was March 1. When, by the beginning of the year, there had been no action detected throughout the state, both Dr. Macomber and I became alarmed and proclaimed our concern. A veritable Montana blizzard of papers resulted—over two dozen articles were submitted by Monana physicians. I thank my colleagues. And thank God for deadlines!

G. A. Diettert, MD
Scientific Editor for Montana

Wonders Never Cease!

A BLACKFOOT INDIAN lady, bent by arthritis and blind, had been completely dependent for many years and bedfast in the hospital for at least nine months.

Her nurses began to comment on a profuse and foul smelling, sometimes bloody vaginal discharge. The pelvic exam was negative except for senile changes and a purulent exudate.

Culture identified *Neisseria gonorrhoeae* in this 90-year-old lady.

J. K. Taylor, MD
Cut Bank, Montana

Thank You, Montana!

RESPONSE TO AN APPEAL from our publication office to members of the Montana Medical Association for articles and case reports for this special issue was followed by overwhelming response. An avalanche of some 20 articles and three editorials exceeded our most hopeful anticipations.

Obviously it will be impossible to utilize all of this copy in one issue. Available space for scientific papers must be in direct proportion to the amount of advertising. This has improved in recent months, and we are optimistic about the future.

Possibly due to haste in response to our plea, much of the copy presented handwritten alterations and insertions. It should have been retyped before sending it to Dr. Diettert. Our printers are, of course, laymen. They do remarkably well with the medical vocabulary, but anyone has a problem in deciphering most doctors' handwriting. As a reminder to future authors, please be thoughtful when preparing your copy. It will save time, correspondence, delay, and expense.

Again, we are grateful for your cooperation.

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ABBOTT

The Montana heart diagnostic center

A statistical evaluation for the year 1971

John A. Curtis, MD,* Great Falls, Montana

This brief statistical review gives the reader an overview of the types of congenital and rheumatic heart disease in children in Montana and the manner in which they were handled.

DURING THE PAST 15 years the Heart Diagnostic Center in Great Falls, Montana, has functioned under the auspices of the Montana State Department of Health and Environmental Sciences. It functions as an intermediate referral and diagnostic center for patients referred by their primary physician. The work-up at this Center consists of the history, social evaluation, physical examination, chest and/or other x-rays, electrocardiography, and phonocardiography. The institutions we have used for further evaluation, i.e., consultation, catheterization, angiography, and/or surgery, were the Mayo Clinic, the University of Minnesota, and the University of Washington in Seattle.

Clinical Diagnosis

A total of 345 patients were evaluated during the year of 1971. Fifteen of the patients were seen more than once, giving a total of 363 clinical evaluations. Of these, 178 patients were evaluated for the first time, 185 had been evaluated previously at this clinic and were seen for follow-up examinations, and 42 of the return patients were post-operative.

As one will note in Table 1, the number of patients seen with specific diagnoses does not generally match that which one would expect from a general population of children with congenital heart disease. This, presumably, is just a yearly phenomenon. Also, the diagnoses were, in general, all clinical diagnoses made at this center and are subject to some error. Previously, we have found that our diagnostic error is around six per cent.[1] In most instances this error happened to be of no great significance to the patient since the plan of referral is a major function of this center.

TABLE 1

Clinical Diagnoses for Patients Seen at the Heart Diagnostic Center

Clinical Diagnoses	Number
Congenital Heart Disease	
Ventricular septal defect	64
Pulmonary stenosis	35
Atrial septal defect	31
Aortic Stenosis	23
Coarctation of the aorta	14
Patent ductus arteriosus	13
Tetralogy of Fallot	8
Aortic insufficiency	2
Pulmonary stenosis with ventricular septal defect	1
Congenital heart disease, type undetermined	8
Possible idiopathic myocardial hypertrophy	7
*Complicated congenital heart disease	25
Functional Murmurs or No Heart Disease	80
Other Heart Disease	3
Rheumatic Heart Disease or Rheumatic Fever	
Acute rheumatic fever	1
Past rheumatic fever (no heart disease)	5
Rheumatic valvular heart disease:	
Mitral stenosis	3
Mitral insufficiency	15
Aortic stenosis	2
Aortic insufficiency	1
Sydenham's Chorea	2
Aortic stenosis and aortic insufficiency	1
Mitral insufficiency and mitral stenosis	1

*The 25 patients with complicated heart disease consisted of children with truncus arteriosus, transposition of the great vessels, tricuspid atresia, total anomalous pulmonary venous return, Ebstein's Anomaly, A-V canal, endocardial fibroelastosis, congenital heart blocks of various types, Marfan's Syndrome with mitral insufficiency, Hallermann's Streiff Syndrome with cardiomyopathy, etc.

*The author is medical director, Rheumatic Fever and Heart Diagnostic Center, Montana Deaconess Hospital, 1101 26th Street South, Great Falls, Montana.

Table 2 is a listing of the total number of patients seen at the Heart Diagnostic Center during the year of 1971 with regard to the age groups. It is noted that these patients came from 47 of the 56 counties in Montana.

TABLE 2

Age Distribution of Patients Seen at the Heart Diagnostic Center

0 to 1 year	45
1 year through 4 years	46
5 years through 9 years	91
10 years through 14 years	80
15 years through 19 years	47
20 years through 25 years	6

Referrals to Other Institutions

As mentioned, referrals were made either to the Mayo Clinic, the University of Washington, or the University of Minnesota for additional consultation and evaluation or surgery. The expense of these referrals were borne either privately to a minimal degree, through private insurance funds, or through Regional Heart Funds and Crippled Children's Funds, which are federally supported. There was only minimal expense incurred by the State of Montana for these out-of-state referrals. Several patients, and parents, needed funding by their County Welfare Departments for travel. Some patients were granted financial assistance through the National Foundation for traveling and boarding expenses. Fifty patients were referred to the Regional Centers for evaluation and/or surgery during this review year. Seven patients were sent two or more times, making a total of 58 patient visits. Thirty-eight of these visits were made for evaluation, and 22 visits were made for surgical care of their heart disease. Referrals for evaluations, which in all cases included catheterization and angiography, were as follows: evaluations only, 27; postoperative evaluations, eight; and evaluation proving no heart disease, one. Five of the patients who were sent for evaluation returned the same year for corrective surgical intervention. One patient was evaluated twice, but had no surgical procedure undertaken during the year of 1971.

Table 3 shows the diagnoses and number of patients who had surgery during 1971. It is worthwhile to comment concerning the seven patients with patent ductus arteriosus. One of these patients had surgery within the State of Montana. Three of the patients were in severe enough clinical difficulty to indicate that they could have had an additional defect and needed additional study, i.e., catheterization and angiography, which they had at the referral institution, and where the ductus was ligated. Another three were from families who had insufficient funds and no insurance. The State, during this year, had insufficient funds to afford corrective surgery within the State. They were therefore sent out-of-state primarily to participate in the Regional Heart Program.

TABLE 3

Diagnosis of Patients who had Surgery

Disease	Number
Atrial septal defect	2
Ventricular septal defect	4
Patent ductus arteriosus	7
Tetralogy of Fallot	3
Coarctation of aorta	1
Congenital aortic insufficiency with mitral insufficiency	1
Ventricular septal defect with transposition of great arteries	1
Ventricular septal defect and atrial septal defect	1
Transposition with patent ductus arteriosus	1
Tricuspid atresia with transposition, atrial septal defect, and ventricular septal defect	1

Table 4 lists the age break-down for the children who were sent to Regional Centers for evaluation and/or operative intervention. Included in this list is the child with patent ductus arteriosus which was done within the state. The child was six years of age.

TABLE 4

Age Distribution of Patients Referred to Regional Centers

Age	Patients referred	Patients who had surgery	Patient visits
0 to 1 year	7	6	10
1 year through 4 years	10	5	12
5 years through 9 years	12	5	14
10 years through 14 years	12	4	12
15 years through 19 years	7	1	7
20 years through 25 years	2	1	3

Discussion

By previous estimates, using an eight-year study period, patients evaluated at the Heart Diagnostic Center represent 74 per cent of the children born or living in Montana with congenital heart disease.[1] The same estimate cannot be made for patients with rheumatic heart disease because there is no adequate registry for these patients in this state. We have developed a philosophy throughout the years that is quite in harmony with the current recommendations of the ICHD Study Group.[2] We have believed that it is important for good patient care to refer patients with congenital heart disease for surgery or comprehensive diagnostic work to centers doing sufficient volume to afford the most reasonable figures in infant mortality and morbidity, and, also, to where competent diagnostic work is being done. We have also found that, provided sufficient material at this center in Great Falls, we could produce reasonable accuracy in our clinical evaluations, and then send the children to the above centers at appropriate times. To quote from the Inter-Society Commission on Heart Disease:[2]

> During this period when cardiac catheterization and selective angiocardiography were becoming more informative and safe, correlation of knowledge so derived with heart sounds, murmurs, electrovectorcardiographic changes, and radiologic findings have improved the interpretation of more routine and easily repeatable studies such as physical examination, electrocardiography, and cardiac series of chest x-rays. Thus, using these simpler diagnostic procedures it is now possible to follow knowledgeably the individual with congenital heart disease and select the optimal time for admission for cardiac diagnostic studies or surgery.

They have stated further:

> It is equally important to refrain from emergency referral of the baby or child with congenital heart disease who demonstrates no cyanosis or tachypnea and shows normal growth, development and activities. For the infant, child or adult with less severe congenital heart disease, elective consultation with the staff at the cardiac center can be arranged by the physician at the point of referral.

In the eight-year study, the overall mortality rate of patients in Montana with congenital heart disease who have been referred through our Center is 14.7 per cent, which is in accord with most other studies.[3] It would seem reasonable to surmise that our distance from the referral centers in Minnesota or the State of Washington and our patterns of referral cause no particular disadvantage to the patients in this state. It also appears that at the present time our method of evaluation and referral is appropriate for the number of patients that we see. Our errors in clinical evaluation appear to be reasonable. It is important to note that there are no figures from University Centers correlating the clinical impression with the final diagnosis of children with heart disease, so it is impossible to tell whether our statistics are good, bad, or indifferent. Another finding is that just 22 children were subjected to surgery during this interval of one year, and again in accord with ICHD recommendations,[4] it would be inappropriate to consider operative intervention on these children within this state. It is also obvious that within the next few years, with new technics and funding, and perhaps flooding of referral centers with patients with acquired heart disease, it may be necessary to re-evaluate our methods of referral. •

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MMERF-Montana's approach to health education

Sidney C. Pratt, MD,* Great Falls, Montana

Montana is one of few states that does not have a medical school, a dental school, or a school of health sciences. Continuing education for the health professionals is, therefore, difficult. The Montana Medical Education and Research Foundation (MMERF) is a mechanism to provide this education.

How does a state without a medical and dental school develop its abilities to carry on continuing education of its health professionals? How does such a state correlate and coordinate its random health educational programs into a unified system? Those are the questions to which Montana addressed itself several years ago. Its answer—MMERF.

MMERF is the Montana Medical Education and Research Foundation, a corporate body whose prime function is to bring continuing education programs to all of the health professionals in Montana and the adjacent Mountain States. It is a consortium of many different, but professionally related, health disciplines whose activities are directed toward the improvement of patient care by means of continuous updating of the education of the interested health professionals. The goals and objectives of the Foundation are described in the Articles of Incorporation: ". . . . support and encourage continuing medical education through the media of, but not confined to, grants and scholarships for the purpose of improving and developing both the quality and quantity and the availability of continuing medical education for the purpose of improving and developing the capabilities of those health professionals who are engaged in the studying, teaching, and practicing of medicine and allied fields, for the purpose of improving the overall care available to patients; and to engage in the instruction of the general public in the areas of medical science and allied fields in related areas useful to the individual and beneficial to the community . . ."

How Did It Start?

The Foundation was the brain-child of key leaders in the Montana Medical Association who recognized the real need to unite the educational efforts of the various members of the health team, realizing that the optimal degree of patient care would be obtained by a true team effort and that such would be possible only by coordinating the individual educational efforts through a single unit such as a Foundation. This concept was approved by the governing bodies of the several health organizations in the several interested disciplines. Once general understanding of the structure, the goals, and the areas of activity of the Foundation was achieved, formal organization followed. The concept visualized a body of leaders chosen by their parent organizations to be the official representatives and to speak for their membership through the medium of a Board of Directors. These original representatives came from the Montana Medical Association, Montana State Dental Association, Montana Hospital Association, Montana Chapter of

*The author is the Medical Director of the Montana Medical Education and Research Foundation and the Director of the Montana Subregion of the WICHE Mountain States Regional Medical Program. The WICHE Mountain States Regional Medical Program encompasses Idaho, Montana, Nevada, and Wyoming. It is one of 56 Regional Medical Programs throughout the nation, authorized by Congress under PL 89-239.

the American Physical Therapy Association, Montana Society of Medical Technologists, Montana Society of Radiologic Technologists, and Montana Nurses' Association.

The development of the actual program itself was accomplished by turning to the Mountain States Regional Medical Program. This had been established in 1966 by the joint action of Montana, Wyoming, Idaho, and Nevada, which had requested the Western Interstate Commission for Higher Education (WICHE) to accept the fiscal responsibility and to become the official grantee. From this union has come the many program and project activities of the Mountain States Regional Medical Program, one of which was entitled "A Program to Provide Continuing Medical Education to All Health Professionals in Montana and Adjacent Areas of the Mountain States Region". Included in this program, as the vehicle to carry out the objectives, was the formation and funding of the Montana Medical Education and Research Foundation. This program was officially approved by the Division of Regional Medical Programs (now known as the Regional Medical Programs Service) at the national level in January 1969; the Foundation was duly incorporated in Montana on January 7, 1969; federal funding followed in July of 1969.

As program activities developed and the knowledge of the Foundation spread and as the value of such an approach to health education became recognized, other professional organizations, beyond the original seven, sought membership. The original Board of Directors, representing these seven professions, has now been expanded to include nurse anesthetists, dietitians, medical record librarians, licensed practical nurses, speech and hearing therapists, optometrists, nursing home administrators, and pharmacists, as well as representation from the Montana Heart Association, the Montana League for Nursing, the Montana Tuberculosis Association, and the Montana Division of the American Cancer Society. Indeed, the original concept of a Foundation for *all* health professionals has become a reality.

What Has Been Done?

Since July 1969, the date of funding of MMERF, to the end of 1971 (two and one-half years), there have been sponsored, either by the Foundation alone or in cooperation with other health organizations, a total of 105 separate educational programs reaching 4,909 participants from Montana and neighboring states. These programs have covered a multitude of topics and encompassed a myriad of assorted health interests. At first glance all would seem to have been separate and individual efforts, but careful study will show that such is not the case. Examination reveals that MMERF and its activities resemble a tree. The trunk is the Foundation itself, with its many branches being the health professions. On each branch are many leaves, each leaf representing one individual program. Analysis also shows that there is intertwining of the branches and leaves as multi-disciplinary programs have been presented, including more than one profession. A rehabilitation program, for example, involves nurses, physical therapists, dietitians, speech therapists, medical social workers, to name but a few, as well as physicians.

The viability of the Foundation was originally based entirely on Regional Medical Program funding and support. All costs of operation, developmental and administrative as well as implementary, were included in an annual budget prepared by staff, approved by Mountain States Regional Medical Program and Regional Medical Programs Service. Program and project development were kept within the limits of the budget. Experience soon showed that a moderate registration fee, by means of which the participants shared a portion of the cost as their own personal responsibility, helped stretch the dollar. Sharing of programming with other organizations—voluntary, educational, and professional—also expanded the ability of the Foundation to enlarge its capabilities, reach more health professionals, and improve its impact on health care. The Regional Medical Program has always had a policy—commendable but also traumatic—that its function is to provide the forum for developing

worthwhile health education programs and to underwrite the cost for a limited time. The analogy of a tree can also be extended to the planting and growth of the sapling. At the start, it was necessary for a federal program, such as the Regional Medical Program, to assist in the planting, nourishing, and watering of the small tree. But, as it grew and its tap root developed and the soil became more nutritious, the assistance of the outside nourishing agency could be gradually withdrawn. Such is the situation as regards MMERF; federal funding is being removed June 1, 1972. MMERF will then be dependent on its own strength to survive or to disappear from the scene.

What Is The Future?

The function of the Foundation and its impact on the future of health education in Montana demands that it remain a viable, active institution. Since public money will no longer be available through federal programs, private funding is being sought. Contributions from the Montana Medical Association, the various component medical societies, and other professional organizations, both within and out of the physician realm, are one source of support. These have been accomplished by dues assessments and gifts. Memorials, as well as individual support from private business and industry, are other anticipated sources of revenue. These are being sought at this time.

One of the functions of the Foundation, in its attempts to improve patient care in Montana through educational methods, could well be the development of basic medical education since such a medical school does not exist in the state. One early effort, in association with the University of Washington is the WAMI concept with which the Foundation has been actively involved for almost two years. It is anticipated that MMERF could be the nucleus of this expanded medical education effort in Montana.

A newly developing consortium of western states and western medical schools is another thrust toward basic medical education in this geographic area. This consortium is represented in Montana by the University of Montana, Montana State University, the Montana Medical Association, and the Foundation.

Still another area in which MMERF is active is the SAMA-MECO project. This Student American Medical Association—Medical Education and Community Orientation program has been developing and coordinating summer perceptorships for pre-clinical medical school students. The Montana Medical Education and Research Foundation has been assigned the responsibility to carry out this function by the Montana Medical Association at the request of the Montana Academy of Family Practice.

All of these expanding performances, as well as past and present continuing education activities, mandate the continued viability of the Foundation and suggest close relationships with the State Department of Public Instruction, as well as the University System. Thus, the future is clearly viewed. Continued emphasis on continuing education for all health professional and expanded basic educational activities in medicine—as well as other disciplines as the possibilities arise—are clear-cut indicators of the course that the Foundation will take. Montana is supporting and will continue to support its own private professional structure, the Montana Medical Education and Research Foundation. •

ACKNOWLEDGMENT

The author wishes to acknowledge the efforts of Alfred M. Fulton, MD, who was President of the Montana Medical Association and directed its activities toward the development of the Foundation, and to Frank L. McPhail, MD, the first Montana Director of the Mountain States Regional Medical Program who authored and guided the Foundation into existence.

Clinical study new short acting sulfanilamide (sulfacytine)*

Protocol 636-48

C. G. McCarthy, MD, Missoula, Montana

THIS THERAPEUTIC, GENERAL TOLERANCE, double blind, controlled study was conducted at the Western Montana Clinic and Infectious Disease Center in Missoula, Montana on 131 patients. The trial was conducted from November 1, 1970 to January 31, 1972. The objective was to determine the efficacy and tolerance of CI-636 (Sulfacytine) as compared to CI-745 (Sulfisoxazole) for ten days. The absorption rate and excretion time are well described in Goodman and Gilman, Chapter 55.[1]

Sulfisoxazole, probably the most widely used short-acting sulfonamide, was selected as the control drug. The half-life of sulfacytine (4.5 hours) is similar to that of sulfisoxazole (six hours). Previous studies indicate that sulfacytine is excreted into the urine as microbiologically active drug without significant acetylation or glucuronidation. 1.0 gram of sulfacytine per day produces urine concentrations of free drug that approach those produced by 4.0 grams of sulfisoxazole per day.

TABLE 1

Historical Information

Treatment Group	Total Number	Sex		Age		Weight		Diagnosis			
		Male	Female	Median	Range	Median	Range	UTI	Cystitis	Pyelo-nephritis	Hema-turia
CI-636 (Sulfacytine)	47	2	45	35.3	18-76	133.5	95-222	11	22	14	0
CI-745 (Sulfisoxazole)	52	2	50	32.6	18-82	131.4	90-250	11	20	20	1

Subject Selection and Experimental Design

Patients with a pretreatment colony count of 100,000 microorganism/ml of urine and no clinical evidence of obstructive uropathy entered the trial. They were assigned by randomization to receive either CI-636, 0.5 gm loading dose followed by 1.0 gm (250 mg. q.i.d.) for ten days or sulfisoxazole 2.0 gm loading dose followed by 4.0 gm per day (1.0 gm q.i.d.) for ten days. The drug was dispersed in a double-blind fashion such that neither investigator nor patient knew which regimen was dispensed. Repeat urine cultures were performed on days seven and 17. Urinalyses were performed pretreatment and on days seven and 17. Blood counts and clinical chemistry determinations were performed before and after treatment.

Results

Of the 131 patients who entered the trial, 32 were eliminated from the following summary due to a lack of follow-up information, a negative pretreatment colony count, or no pretreatment pyuria even though clinically

*From the Western Montana Clinic, 501 W. Broadway, Missoula, Montana.

TABLE 2

Patients with Positive Pretreatment Urine Cultures
Distribution of Pathogenic Microorganisms

Treatment Group	Total Number	E. coli	Staph Epidermidis	Staph Aureus	Proteus Mirabilis	Alpha Hemolytic Strep	Kleb-siella	Mixed
CI-636 (Sulfacytine)	30	27	2	0	1	0	0	0
CI-745 (Sulfisoxazole)	32	25	0	1	0	1	1	4

symptomatic. A positive urinary colony count was considered as 100,000 microorganisms/ml of urine from a clean-voided specimen. 50,000/ml of urine from a catheterized specimen was also considered positive.

Table 1 displays the historical information for the 99 patients. Forty-seven patients received CI-636 (sulfacytine) and 52 patients CI-745 (sulfisoxazole). The two groups are comparable in terms of sex, age, weight, and diagnosis. Diagnoses were urinary tract infection, cystitis, pyelonephritis, and in one case, hematuria.

Table 2 displays by treatment group the distribution of pretreatment pathogenic microorganisms for the 62 patients having positive pretreatment urine cultures. The large majority of microorganisms were E. coli. Of the 30 patients who received sulfacytine, 27 had E. coli, two Staph. epidermidis, and one Proteus mirabilis. Of the 32 patients who received sulfisoxazole, 25 had E. coli, one Staph. aureus, one Alpha Hemolytic Strep, one Klebsiella, and four mixed microorganisms.

Table 3 displays by treatment group the distribution of pretreatment, treatment, and post-treatment urine cultures and pyuria for the 62 patients having positive pretreatment urine cultures. During treatment none of the 30 patients receiving sulfacytine continued to have positive urine cultures, three (10 per cent) were equivocal, and 27 (90 per cent) were negative. After treatment three (ten per cent) were positive, two (six per cent) were equivocal, and 25 (84 per cent) were negative. Urine cultures during treatment for

TABLE 3

Patients with Positive Pretreatment Urine Cultures—
Distribution of Pretreatment, Treatment, and Post-Treatment
Urine Culture Results and Pyuria

Treatment Group		Pretreatment			During Treatment							Post-Treatment				
		Urine Culture*	Pyuria†		Urine Culture				Pyuria			Urine Culture			Pyuria	
		Pos	Pos	Neg	Pos	Equiv	Neg	NS	Pos	Neg	NS	Pos	Equiv	Neg	Pos	Neg
CI-636 (Sulfacytine)	Number	30	26	4	0	3	27	0	2	28	0	3	2	25	3	27
	Per Cent[1]	100	88	12	—	10	90	—	6	94	—	10	6	84	10	90
CI-745 (Sulfisoxazole)	Number	32	24	8	1	3	25	3	1	27	4	2	3	27	4	28
	Per Cent[1]	100	76	24	3	9	79	9	3	85	12	6	9	85	12	88

*Urine Cultures—Pos=Positive > 100,000 organisms per ml.
Equiv=Equivocal < 100,000 organisms per ml.
Neg=Negative
NS=Not Specified

†Pyuria—Pos=Positive, > 10 WBC per HPF
Neg=Negative < 10 WBC per HPF
NS=Not Specified

[1]Approximate percentages

TABLE 4

Patients with Negative Pretreatment Urine Cultures and Positive Pretreatment Pyuria
Distribution of Pretreatment, Treatment, and Post-Treatment Pyuria

Treatment Group		Total Number	Pretreatment		During Treatment		Post-Treatment	
			Positive	Negative	Positive	Negative	Positive	Negative
CI-636 (Sulfacytine)	Number	17	17	0	3	14	3	14
	Per Cent	—	100	—	18	82	18	82
CI-745 (Sulfisoxazole)	Number	20	20	0	4	16	4	16
	Per Cent	—	100	—	20	80	20	80

the 32 patients receiving sulfisoxazole remained positive for one (three per cent), were equivocal for three (nine per cent), negative for 25 (79 per cent), and not specified for three. After treatment two (six per cent) were positive, three (nine per cent) were equivocal, and 27 (85 per cent) were negative. Pyuria in the sulfacytine group was present in 26 patients (88 per cent) pretreatment, two (six per cent) during treatment, and three (ten per cent) after treatment. For the sulfisoxazole group pyuria was present in 24 (76 per cent) pretreatment, one (three per cent) during treatment, and four (12 per cent) after treatment.

Table 4 displays by treatment group the distribution of pretreatment, treatment, and post-treatment pyuria for the 37 patients presenting negative pretreatment urine cultures but positive pretreatment pyuria. For the 17 patients receiving sulfacytine, pyuria continued to be present in three patients (18 per cent) during treatment and three (18 per cent) after treatment. For the 20 patients receiving sulfisoxazole, four (20 per cent) continued to have pyuria during treatment and four (20 per cent) after treatment.

Table 5 displays the adverse experiences of the two treatment groups for all 131 patients (65 in the sulfacytine group and 66 in the sulfisoxazole group). Six adverse experiences occurred in those patients receiving sulfacytine, two each of nausea and backache and one each of diarrhea and headache. All were of mild to moderate severity and no specific treatment was taken to relieve the symptoms. The investigator felt all were possibly attributable to sulfacytine. Eleven adverse experiences occurred in those patients receiving sulfisoxazole. Two of these symptoms, one of severe leg cramps and one of a moderate rash and itching, were determined by the investigator to be attributable to sulfisoxazole. The patients were taken off drug on study day eight and nine respectively. The remaining symptoms were two of diarrhea, two of headache, and one each of lower backache, itching, flushed neck and face, and a swollen eye. All were of mild to moderate severity and no specific action was taken to relieve the symptoms. The investigator thought these symptoms were possibly due to sulfisoxazole. One case of a mild ache in the neck and eye was reported by a patient receiving sulfisoxazole. No treatment was prescribed and the investigator reported no opinion as to its drug attributability.

Discussion

This study provides information about the efficacy of sulfacytine at a dose of 1.0 gm/day. It also provides further information about acute urinary tract infections. Table 2 indicates that the most common microorganism is E. coli. Table 3 indicates a high correlation between pyuria and positive urine cultures. If a positive colony count is expected, then pyuria certainly should be present. The urine cultures obtained following treatment indicate no difference between the sulfacytine and sulfisoxazole treatment group. An antibiotic effective against urinary tract infections must eradicate the infection, not just suppress it. Therefore, the post-treatment urine cultures are perhaps the most important consideration in determining

TABLE 5
Adverse Experiences*

CI-636 (Sulfacytine)

Subject Number	Study Days	Symptom	Severity	Drug Attributable	Management
13	4-5	Diarrhea	Mild	Possibly	None
68	1-2	Nausea	Moderate	Possibly	None
89	5-6	Nausea	Moderate	Possibly	None
89	1-3	Headache	Moderate	Possibly	None
101	1-12	Backache	Moderate	Possibly	None
119	1-8	Backache	Mild	Possibly	None

CI-745 (Sulfisoxazole)

Subject Number	Study Days	Symptom	Severity	Drug Attributable	Management
105	1-8	Cramps in leg	Severe	Yes	Drug discontinued day 8
105	1-8	Lower backache	Moderate	Possibly	None
3	3-9	Rash and itching	Moderate	Yes	Drug discontinued day 9
29	2-5	Itching	Mild	Possibly	None
43	6-7	Diarrhea	Mild	Possibly	None
87	1-5	Diarrhea	Moderate	Possibly	None
87	1-5	Headache	Moderate	Possibly	None
51	1-6	Headache	Mild	Possibly	None
33	5-7	Neck and face flushed with reddened areas and puffiness	Mild	Possibly	None
66	4-8	Swollen eye	Mild	Possibly	None
8	4-5	Ache in neck and ear	Mild	No opinion	None

*For all 131 subjects

efficacy. Both regimes produced a cure rate of approximately 85 per cent.

Of the 99 patients included in the summarization, 62 had positive urine cultures. Thirty-seven patients were symptomatic with pyuria, but a microorganism was not recovered. Other investigators have found similar results. The coliform species can be a difficult microorganism to recover.

Table 5 indicates that the patients receiving sulfisoxazole had more adverse experiences than those receiving sulfacytine. This difference is attributable to the higher dosage of sulfisoxazole.

Conclusions

Sulfacytine is a short-acting sulfonamide which produces high urine concentrations of free, microbiologically active drug. This study indicates that a dose of 1.0 gm/day of sulfacytine will produce a cure rate of acute urinary tract infections comparable to a dose of four grams of sulfisoxazole per day. More patients receiving sulfisoxazole had adverse drug experiences than those receiving sulfacytine. The data would indicate that sulfacytine should be a safe and effective sulfonamide by the management of acute urinary tract infections. •

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Aneurysm of the renal artery

Report of a case

David E. Klein, MD, and C. D. Vermillion, MD, Billings, Montana

The successful repair of an asymptomatic renal arterial aneurysm is described. Rationale for surgery of these lesions is reviewed. Nearly all aneurysms of the renal artery should be repaired.

IN RECENT YEARS aneurysm of the renal artery has been reported with increasing frequency as the use of selective renal angiograms has become more routine. In 1957 Garritano[1] reviewed 175 cases in the world literature to that date and added one of his own. In the subsequent decade Cerny et al[2] noted another 170 cases in the world literature and added 25 cases. Since then other authors have reported on numerous renal arterial aneurysms found on angiograms performed for a variety of reasons. We herein describe such a case.

Fig. 1. Right upper quadrant calcification on flat plate of abdomen.

CASE REPORT

A 57-year-old white female was admitted to St. Vincent's Hospital for basket extraction of a left ureterovesical junction calculus. Except for the calculus and a rounded, two centimeter calcific density in the right upper quadrant (Fig. 1), the IVP and flat plate were normal. Following uneventful recovery from the stone extraction, she was re-admitted for renal arteriography, which showed a saccular aneurysm precisely at the trifurcation of the renal artery (Fig. 2). The left renal artery was normal. There was no evidence of stenosis or compromise of blood flow by the aneurysm. The patient was normotensive. On January 28, 1971, she underwent resection of the right renal arterial aneurysm with Dacron patch angioplasty. Immediate postoperative IVP showed bilateral normal function (Fig. 3). She recovered uneventfully and was dismissed on the sixth postoperative day. Pathologic examination showed a heavily calcified aneurysm with severe arteriosclerosis.

Fig. 2. Right renal arteriogram showing aneurysm at trifurcation.

Discussion

Aneurysms of the renal artery are due to a variety of congenital, traumatic, inflammatory, and degenerative processes with the latter being responsible for the majority. The exact incidence is unknown but has been shown to be fairly high in certain selected groups, such as hypertensives where it has been described as one in 112.[3]

The major complications of renal arterial aneurysms are hypertension and rupture. Most authors agree that patients with hypertension and an aneurysm should be treated with renal arterial repair when possible, or otherwise with nephrectomy. Cerny et al[2] report that nine of 19 patients (47 per cent) in their series who underwent operation were cured of their hypertension.

The potential for rupture of aneurysms of the renal artery is also well documented in the literature. Ippolito and LaVeen[4] reported that the incidence of rupture of non-calcified aneurysms in their study was 14 per cent with a mortality of 80 per cent. Others have noted the incidence of rupture in non-calcified aneurysms to be as high as 25 per cent.[5] Burn et al[6] reported that seven out of eight pregnant women with rupture of non-calcified renal arterial aneurysms died. There is, therefore, a consensus in the literature that any renal arterial aneurysm that is non-calcified or occurs in a pregnant patient should be repaired when possible, or a nephrectomy should be carried out. Due to recent advances in vascular surgical technics, the use of nephrectomy has been largely confined to patients with multiple lesions or intra-parenchymal aneurysms which cannot be repaired.

Fig. 3. Postoperative IVP. Normal function bilaterally.

There is also general agreement that any calcified renal arterial aneurysm associated with hypertension should be repaired. However, the treatment of the calcified, asymptomatic renal aneurysm of the artery has remained an area of controversy due primarily to the lack of any real knowledge of the natural history of these lesions. As late as 1960 Ippolito and LaVeen[4] were unable to find any cases of rupture of a calcified renal arterial aneurysm in the literature. In 1968 Cerny et al[2] noted three cases of documented rupture of calcified renal arterial aneurysms, and because of this they felt that calcified aneurysms should also be operated on if the condition of the patient permitted it. McKiel et al[7] in an earlier article also proposed that all calcified aneurysms should be surgically repaired. Other authors,[4,8,9] however, feel that these lesions are not dangerous if under 1.0-1.5 centimeters in diameter and if asymptomatic.

We are currently of the opinion that, with few exceptions, all renal arterial aneurysms, calcified or not, should be repaired. The exception would be a small, calcified aneurysm in an elderly patient. The presence of hypertension makes surgery for these lesions imperative since they can contribute to diminished blood flow to the kidney. The rationale for surgery for asymptomatic aneurysms is based on the high mortality due to rupture, although the exact likelihood of rupture occurring is not known. The extent to which calcification diminishes the threat of rupture is unknown. Since documented cases of rupture of calcified aneurysms exists, the pres-

ence of calcium should probably not influence the choice of treatment.

Since many of these aneurysms are discovered while evaluating an upper abdominal calcification, the importance of evaluating these calcified lesions completely should be emphasized. It is, of course, imperative to know the exact status of the arterial system in both kidneys prior to surgery, since nephrectomy is occasionally necessary.

A variety of surgical technics is available for the reconstruction of the renal artery following aneurysm resection. Since many of these lesions are saccular, they can be easily repaired with a patch graft of either saphenous vein or prosthetic material. Occasionally, resection of a fusiform aneurysm can be followed by end-to-end arterial anastomosis. Intraparenchymal lesions can be cured only by nephrectomy.

Summary

A successful repair of an aneurysm of the renal artery is reported and the indications for renal arterial repair briefly discussed. We believe that any renal aneurysm of the artery which is symptomatic, is non-calcified, or if found during pregnancy should be repaired or a nephrectomy carried out. Also most calcified renal arterial aneurysms occurring in an asymptomatic individual should be repaired, if there are no medical contraindications, since rupture of these aneurysms has recently been documented. •

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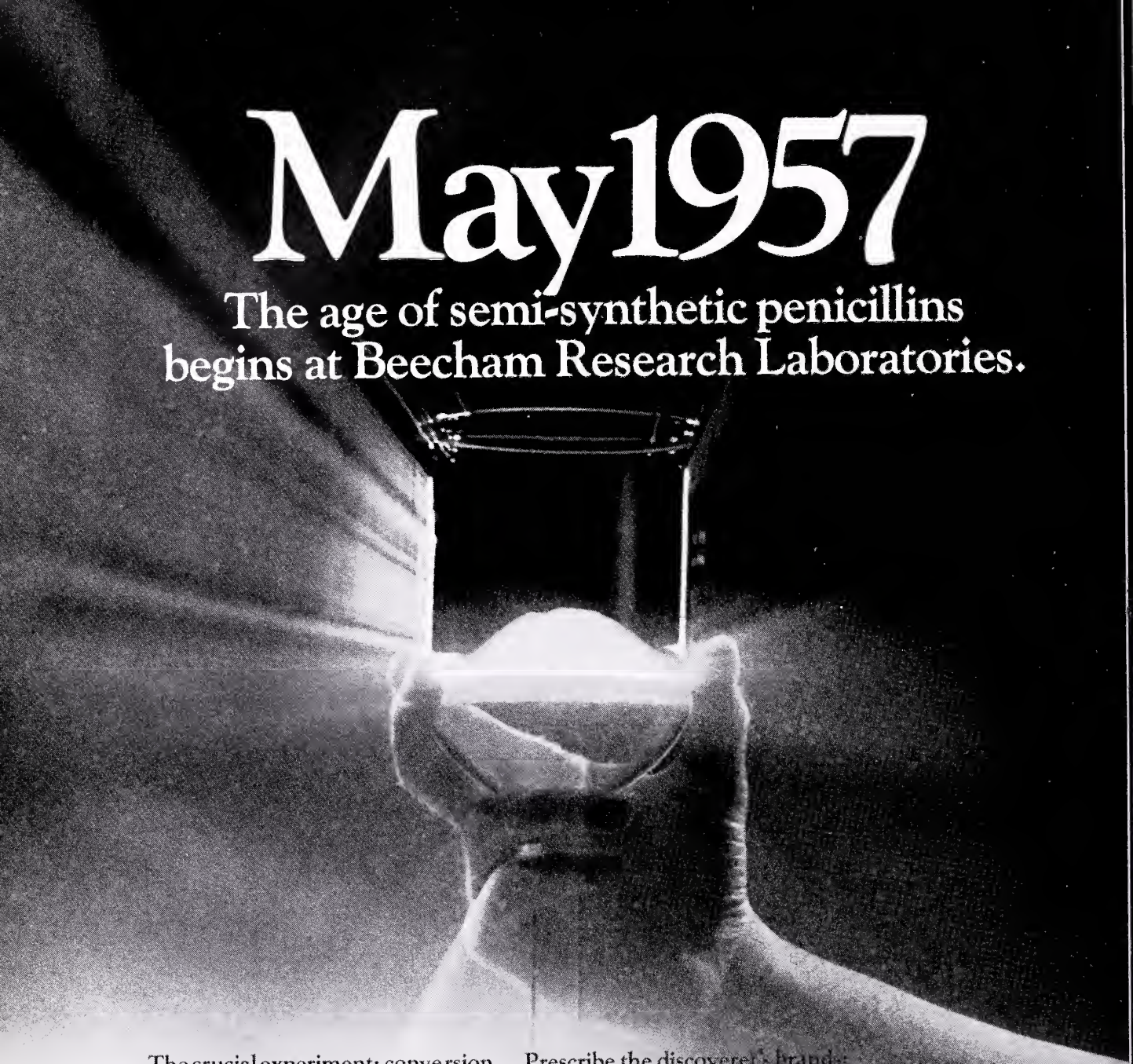

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Primary hyperparathyroidism*

Before and after development of routine screening tests

Warren D. Bowman, Jr., MD, Billings, Montana

Routine screening of serum calcium results in earlier diagnosis of primary hyperparathyroidism.

IN RECENT YEARS the development of multichannel biochemical screening has made determination of the serum calcium level a part of every thorough physical examination. As a result, significant numbers of asymptomatic patients with elevated calciums are being discovered, and we are realizing that primary hyperparathyroidism is not as rare as we had formerly thought. Moreover, we are now seeing examples of this disease before development of its long-term complications such as urinary stones, impaired renal function, bone disease, and peptic ulceration. Keating,[1] among others, has asked whether there may not be a relatively benign form of primary hyperparathyroidism which may not require surgery.

At the Billings Clinic, the serum calcium has been included in the biochemical screen since May 1, 1969, and serum phosphate since February 1, 1971. During the past 12 months there have been four patients with parathyroid adenomas whose hypercalcemia was found on routine screening. Only one of these had symptoms suggesting hypercalcemia. Review of my experience with hyperparathyroidism over the past 11 years added three additional patients to these four recent ones and illustrates the change in the manifestations of this disease since routine use of the biochemical screen.

*From the Department of Internal Medicine, Billings Clinic, Billings, Montana. Presented before the Montana-Wyoming Section, American College of Physicians, October 30, 1971.

CASE REPORTS

Case 1. A 68-year-old white male had a long history of urinary stones, having been hospitalized in July 1958 for a bladder calculus and in November 1960 for a left ureteral stone with a left pyonephrosis. I saw him in June 1962 for complaint of feeling ill for a month, with weight loss of 20 pounds, anorexia, epigastric pain, and intermittent black stools. He had recently passed another bladder stone. Physical examination was unrevealing. Laboratory studies included a Hgb of 11.1 Gm per cent, pyuria, BUN 19.5 mgm per cent, serum calcium 13.2 mgm per cent, and serum phosphate 3.5 mgm per cent. X-ray examinations revealed a duodenal ulcer and left ureteral calculus. He was hospitalized. Repeated serum calciums were 12.7 mgm per cent and 12.6 mgm per cent and serum phosphate was 2.4 mgm per cent. Studies for multiple myeloma were normal, and there were no signs of primary or metastatic carcinoma. At surgery, a brownish red tumor, 2.0 cm. in diameter, was found at the left upper pole of the thyroid gland, which proved to be a chief cell parathyroid adenoma. Postoperatively his serum calcium returned to normal. He continued to have a chronic urinary tract infection. In November 1963, he had a stroke with right hemiplegia. He died in 1969.

Case 2. A white female was seen in August 1962 at age 26, after her oral surgeon removed a jaw tumor which microscopically was a typical "brown tumor". She denied thirst, polyuria, fatigue, or any gastrointestinal symptoms, but at one time had passed a renal stone. Physical examination showed nothing other than slight thyroid enlargement. Laboratory studies included a serum calcium of 13.3 mgm per cent and a phosphate of 1.4 mgm per cent. A 24-hour urine contained 129 mgs of calcium. Hand x-rays showed small cortical defects of the lateral aspects of the middle phalanges of the index and middle fingers. She was hospitalized and at surgery a 2.5 x 1.5 cm. adenoma was removed from the area of the left upper parathyroid gland, which microscopically was a chief cell parathyroid adenoma.

Postoperatively, her calciums remained elevated, being 12.3 mgm per cent in September, 12.7

mgm per cent in October and 13.1 mgm per cent in January 1963. She was re-explored in January 1963, and a second chief cell adenoma was found at the site of the right lower parathyroid gland. After surgery her serum calcium fell temporarily to 6.1 mgm per cent, requiring treatment with intravenous and oral calcium. Over the past eight years she has been examined regularly, her serum calciums have remained normal, and she has shown no signs of the development of multiple endocrine adenomatosis.

Case 3. A 48-year-old woman was hospitalized in March 1966. She had fallen three months before and developed pain in her left hip. She stayed in bed three weeks, then was up and about. She fell again on the day of admission and had pain in the opposite hip. She had noted migratory "arthritis" for the previous three years, but no polyuria or polydipsia and no gastrointestinal symptoms. Examination showed a chronically ill, pale, white female with dry and atrophic skin. Her thyroid was enlarged three times normal size and irregular. X-rays showed a subtrochanteric fracture of the right femur and fracture through the distal neck of the left femur. There was marked osteoporosis.

Laboratory tests included Hgb of 10 Gm per cent, BUN 47 mgm per cent, alkaline phosphatase 55 King-Armstrong units/100ml., urine containing 3+ protein and pus with a S.G. of 1.016. Serial serum calciums were 12.2 mgm per cent, 13.1 mgm per cent, and 13.4 mgm per cent; a serum phosphate was 4.2 mgm per cent. A 24-hour urine specimen contained 170 mgm of calcium. Hand x-rays showed irregular indentations of the cortex of several of the phalanges of both hands, with areas of cystic appearance.

After being fitted with a bilateral hip spica at surgical exploration of the neck, a 3 cm., purplish-brown adenoma was found opposite the lower one-third of the thyroid gland. Postoperatively, she had a long period of hypocalcemia which required treatment with intravenous and oral calcium and Vitamin D. Orthopedic treatment included trial of hip spica and finally pinning of the right hip. The bone was so soft that the screws did not hold and had to be removed. She was finally discharged from the hospital in November, eight months after admission, and since then has been seen periodically in the office. Her serum calcium has remained normal, but she has continued to have a chronic urinary infection and an elevated BUN. She has developed a pseudoarthrosis of the right femur and needs a walker to get around.

Case 4. An elderly white female has been coming in for periodic physical examinations since 1964 and has been troubled by gallstones, hyperuricemia, obesity, low back pain, degenerative arthritis of the knees, hypertension, chronic anxiety, and hypercholesterolemia. She was examined in May 1969 at the age of 65, at which time she had no complaints suggesting hypercalcemia. Routine laboratory studies included a calcium of 11.2 mgm per cent. When repeated, her serum calciums were 11.4 mgm per cent and 11.8 mgm per cent and phosphates were 3.3 mgm per cent and 2.9 mgm per cent. The serum protein elecper cent, and 12.9 mgm per cent. After five days at surgical exploration of the neck, a 3 cm., 354 mgm of calcium. Hand x-rays showed only a repeat serum calcium was 11.2 mgm per cent and phosphate 2.6 mgm per cent.

She was re-examined in October 1970 and serial serum calciums were 11.9 mgm per cent, 12.2 mgm per cent and 12.9 mgm per cent. After five days of a low calcium diet, a 24-hour urine contained 354 mgm of calcium. Hand x-rays showed only osteoporosis and degenerative arthritis. At exploration a mass was removed from the thyroid gland which proved to be a 2 cm. chief cell parathyroid adenoma. Postoperatively she has done well and subsequent serum calciums have been normal.

Case 5. A 24-year-old white female was first seen by her obstetrician in September 1970, pregnant with her first child with an EDC of early January 1971. She was hospitalized around Thanksgiving for hypertension and polyhydramnios. A routine blood screen included a serum calcium of 13.8 mgm per cent. She had no symptoms suggesting hypercalcemia, and a week later she delivered a normal female infant. Repeated serum calciums were 12.6 mgm per cent and 12.0 mgm per cent and serum phosphates were 2.1 mgm per cent and 1.4 mgm per cent. A serum protein electrophoretic pattern was normal. Twenty-four hour urines contained 148 mgm of calcium before and 180 mgm of calcium after calcium restriction. X-rays of the hands and teeth were normal.

She was rehospitalized six weeks after delivery. A serum calcium was 14.9 mgm per cent and a phosphate was 2.1 mgm per cent. Exploration of the neck revealed a 1.6 x 1.2 cm. chief cell adenoma at the location of the right lower parathyroid gland. Postoperative calciums have been normal.

Case 6. A 69-year-old white female had had five to six episodes of renal colic since 1957, but IVP's had been normal. She was seen in December 1970 for a routine physical examination. Laboratory tests included a serum calcium of 11.9 mgm per cent, phosphate 3.2 mgm per cent. When repeated, the calcium was 11 mgm per cent and phosphate was 2.7 mgm per cent. The protein electrophoretic pattern was normal. A 24-hour urine contained 297 mgm of calcium after five days of a low calcium diet. Hand x-rays were normal.

She was hospitalized in January 1971. At surgery, three definite parathyroid glands were found on the right and none on the left. Two of these were removed, and on examination one of these contained a 9 mm chief cell adenoma. Postoperatively, serum calciums have been normal.

Case 7. This woman has been followed since 1944 at the Billings Clinic. In July 1970, at the age of 64, she was seen by her internist because of abdominal pain. Routine screening tests included an FBS of 126 mgm per cent and a calcium of 12.3 mgm per cent. A repeat calcium was 12.6 mgm per cent and a two-hour postprandial blood sugar was 304 mgm per cent. She was treated for her mild diabetes. A month later a repeat calcium was 11.3 mgm per cent.

In October 1970, she developed pain in the back and left leg. In April 1971, her thyroid gland was noted to be moderately enlarged. A repeat serum calcium was 13.2 mgm per cent and a phosphate 2.4 mgm per cent. A 24-hour urine specimen contained 307 mgm of calcium (diet not specified). The serum proteins were normal and bone x-rays were normal except for stippling of the skull. At exploration, a 1.5 cm. parathyroid adenoma, acinar-type, was removed. Postoperatively, her calcium has returned to normal.

Discussion

It is evident that the first three patients, diagnosed before the days of routine serum calcium screening, were generally sicker than the last four, and two of the three continued to show chronic renal disease after surgery. We can suspect that there is something to be said for making the diagnosis of hyperparathyroidism early, and the only way to do this is to perform routine serum calciums. Serum calcium should be a part of every multichannel biochemical screen.

Data obtained from such screening programs suggest that primary hyperparathyroidism may be a more common problem than previously recognized. In a study reported by Boonstra and Jackson,[2] 31 of 25,847 consecutive patients seen in one clinic, or one in 834, had primary hyperparathyroidism. Only eight of these 31 had signs or symptoms suggestive of this diagnosis.

An interesting prospective study is currently being carried out at the Mayo Clinic, the first 30 months of which were recently reported by Purnell and associates.[3] The clinical course of asymptomatic patients with primary hyperparathyroidism without complications, in which surgical treatment has been deferred, is being investigated. The authors suggest that there may be different types of this disease and that some of these patients may not require surgery. It is not clear from the study to date how to predict to which category a given patient belongs.

Faced with an elevated serum calcium, the clinician has two problems: (1) establish the presence of definite hypercalcemia, and (2) determine the cause of the hypercalcemia. In the first category, our custom is to obtain serial (at least three) serum calciums, and a 24-hour urine for calcium. If the latter is elevated, it is repeated after five days of a low calcium diet. Borderline cases should be brought back and restudied in six to twelve months. In patients with definite hypercalcemia a careful history is taken and a meticulous physical examination performed. Many of these patients will have enlarged thyroid glands, which are almost never due to parathyroid adenomas. Routine tests include a serum protein electrophoretic pattern, urinalysis, intravenous pyelogram, and x-rays of the chest, hands, and teeth. Other tests are selected according to the patients' specific symptomatology. If no other cause for hypercalcemia can be found, the neck should be explored.

Strott and Nugent[4] have analyzed the various tests for primary hyperparathyroidism including the serum calcium and phosphate, urinary excretion of calcium and phosphate, tests of renal handling of phosphate, responses to acute calcium loading and to steroid administration, ionized serum calcium concentration, and plasma parathyroid assay, and feel that all of them are either insensitive or nonspecific. In their experience, the most difficult cause of hypercalcemia to differentiate from primary hyperparathyroidism is occult carcinoma without bony metastasis—usually from the lung, kidney, or bladder.

More recently, the radioimmunoassay of parathyroid hormone looks as though it will be a valuable diagnostic tool, although at present it is available in only a few large

research centers. The biggest difficulty seems to be the lack of sufficient quantities of human parathyroid hormone from which to prepare antisera and the lack of complete cross-reactivity to the bovine parathyroid hormone currently used. There is also a fair amount of overlap between the top normal range and the amount of parathyroid hormone produced by mild cases with small adenomas. One of the greatest values of this test may ultimately prove to be its ability to separate primary hyperparathyroidism from ectopic hyperparathyroidism due to occult carcinoma, since ectopic parathyroid hormone is usually immunologically distinct.[5] •

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Closed biopsy in diagnosis of lesions of the vertebral bodies

David P. Jacobson, MD, and Wesley W. Wilson, Missoula, Montana*

Closed vertebral biopsies were done in a series of ten consecutive patients in a small community hospital. The procedure is safe, simple, and reliable for the diagnosis of bone lesions.

EFFECTIVE THERAPY FOR INFECTIOUS and neoplastic processes involving the vertebral bodies demand that a histologic diagnosis be established. Closed biopsy of lesions of the vertebral body under roentgenologic control has been shown to be a useful, safe, and reliable technic.[1,2,3] Our experience with ten consecutive needle biopsies in a community hospital is the basis for this paper.

*The authors are from the Department of Orthopedic Surgery and the Department of Internal Medicine, Western Montana Clinic, Missoula, Montana.

Technic

The technic described by Valls et al[4] using the Craig instrument was utilized. The method for lumbar vertebral biopsy is described as follows:

The patient lies prone on the x-ray table and a single image intensifier unit is used for the AP plane. Films are used for lateral control. A biplane image intensifier, if available, would be useful. Surgical preparation is performed, the skin is scratched six and one-half centimeters from the midline. Skin and subcutaneous tissues are infiltrated with one percent Xylocaine.

A standard surgical protractor set at 150 degrees to the perpendicular is used to establish the angle of penetration and a five millimeter stab wound is made at the point of skin infiltration. The blunt trochar is easily passed through the subcutaneous tissue and muscle layers until bone is encountered. The image intensifier is used to

TABLE 1

Clinical Features of Patients Studied by Vertebral Biopsy and Pathological Findings.

	History	X-ray and Laboratory	Pathology
I.H. Age 69 Female	One-month thoracic back pain radiating to right chest and upper abdomen.	Old compression of T-11 and recent compression of T-8. Generalized osteoporosis. Bone scan—increased uptake at T-8. Sedimentation rate elevated 38 mm/hr.	Normal
N.F. Age 69 Female	CA breast two years ago. One-month history of low back pain and ten pounds weight loss.	Lysis and collapse of L-4. Bone scan—increased uptake at L-4 and sternum. Alkaline phosphatase 2.4 (N=0.8 to 2.3).	Metastatic adenocarcinoma
T.H. Age 66 Female	Hysterectomy for fibroids. 40 years without hormone replacement. Sudden back pain one month without trauma. Multiple fractures during past four years.	Compression of T-12, recent generalized osteoporosis. Alkaline phophatase 2.7. Sedimentation rate 43 mm/hr. (Wintrobe)	Sclerotic bone (no malignancy)
F.H. Age 75 Male	One year left thoracic pain. Two-month pain at T-5 radiating to right anterior chest.	Lytic areas T-5. Several spots in ribs. Generalized osteoporosis. Multiple compression fractures. Pedicle dissolution right T-3 and T-4.	Rib biopsy osteoporosis. T-5 poorly differentiated metastatic carcinoma.
F.D. Age 88 Female	Four-month low back pain.	Generalized osteoporosis. Compression of T-12, T-11, L-3, and L-4. Sedimentation rate 41 mm/hr.	Sclerotic bone spicules
M.I. Age 81 Female	Low back pain three years. Increase in severity in three months. Prior fracture of hip.	Lytic lesion L-2. Other x-rays and lab normal.	Adenocarcinoma
R.W. Age 60 Male	Six months before biopsy fell and developed low thoracic back pain.	Compression of T-8 and T-9 with progressive collapse in one-month interval. Electrophoresis — mild elevation of gamma globulin. Sedimentation rate normal. Bone marrow aspiration and biopsy normal.	First biopsy — abnormal tissue suggestive of inflammatory change. Second biopsy —plasmacytoma.
L.M. Age 76 Female	Three months before biopsy, hospitalized with severe back pain which persisted.	Diffuse osteoporosis; compression fracture of T-12. Lab work normal.	Osteoporosis and new bone formation.
H.G. Age 65 Female	Carcinoma of breast, treated surgically four years before. Neurologic abnormalities—etiology unclear but present two years.	Diffuse osteoporosis. Rarefaction in both scapulae, ribs and sacrum. Low albumin. Alkaline phosphatase 3.9 (elevated).	Biopsy of right scapula and right sacrum. No malignancy demonstrated.
J.B. Age 55 Female	Non-specific granulomatous disease by previous biopsy of liver, lymph node, and wrist synovium. All cultures and lab work normal. Placed on empirical cortisone. History of low back pain.	Diffuse osteoporosis with gradual collapse of T-8 over a six month interval. Felt to be related to steroid or underlying disease.	Focally sclerotic bone with normal marrow. No granulomata or malignancy.

verify proper positioning. In the thoracic area, the trochar must be manipulated to avoid the rib.

The cannula is then slipped over the trochar and the trochar removed. The cutting blade is inserted into the cannula until it rests against the posterior-lateral cortex of the vertebra. A handle is attached to the cutter and rather vigorous twisting and pressure is required to window the cortex; thereafter, the cancellous bone penetrates easily. Care must be taken to prevent excessive penetration. The exact depth can be checked with the calibrations on the side of the instrument. After proper depth is established via x-ray control, the cutter is twisted a few times and removed through the cannula; the stylet is used to expel the tissue onto a sterile glass slide to allow evaluation of the consistency of the tissue. A culture may be taken from the usual vigorous venous bleeding through the retained cannula. Biplane x-ray films are taken to document the exact site of biopsy. If the specimen is inadequate, the vertebra may be reentered through the retained cannula and another sample obtained.

The cannula is removed and the wound covered with a small dressing.

Thoracic and cervical levels require a more shallow depth, and skin penetration nearer the midline is required. Adjustment must also be made for extreme kyphosis.

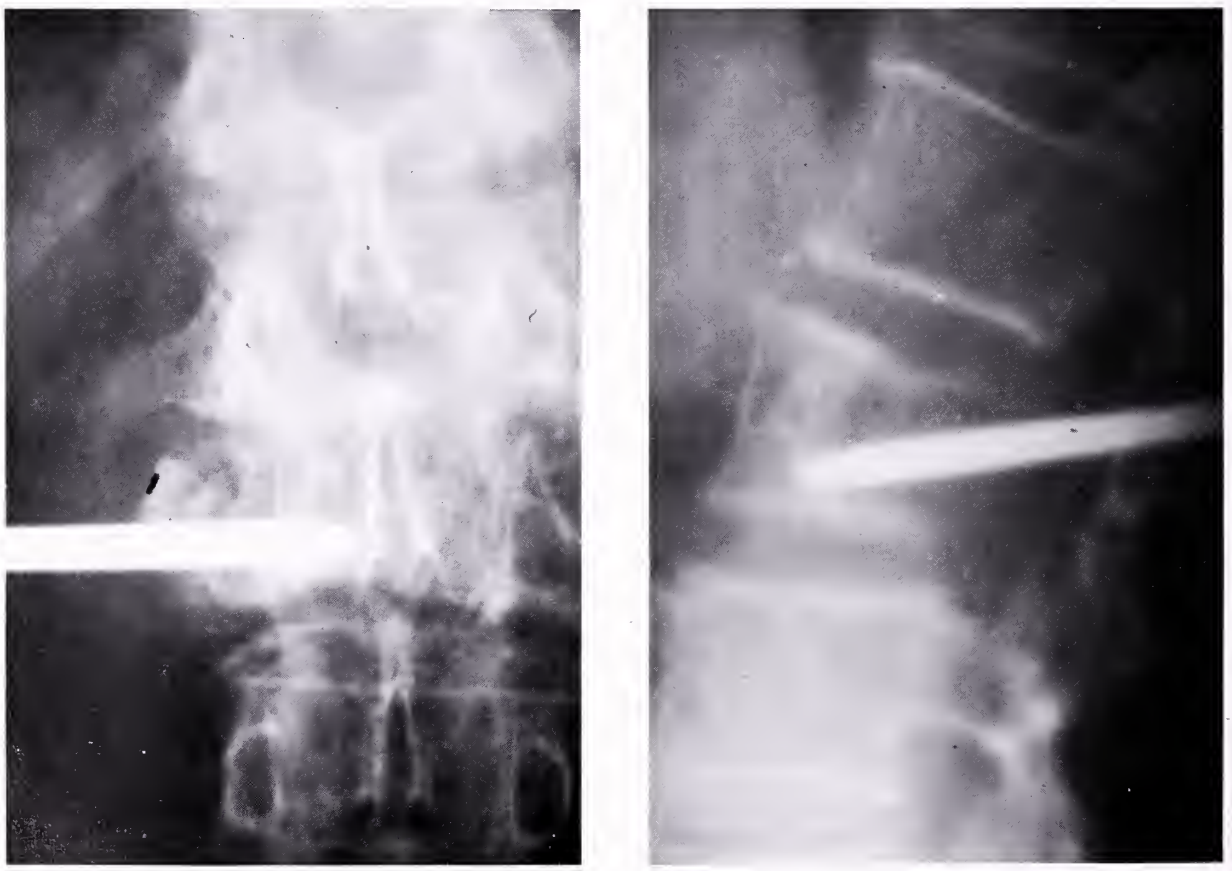
Discussion

The ten cases reported here tolerated the procedure well and there was no morbidity (Table 1). This method seems clearly preferable to open technics. Two cases demonstrate the advantages of this technic.

CASE REPORTS

Case 1. An elderly woman with widespread osteoporosis and a nine-month history of back pain was treated conservatively with inpatient hospital care with presumptive diagnosis of osteoporotic compression fracture of T-11. Laboratory studies were normal, and x-rays showed an old, previously noted compression fracture of T-11 and a new compression fracture of T-8. Strontium 89 bone scan showed increased uptake at T-8. A destructive lesion could not be excluded. Biopsy of the involved vertebrae showed severe osteoporosis. A positive diagnosis permitted continued symptomatic therapy and relieved anxiety of both patient and physician.

Case 2. An 81-year-old woman with generalized osteoporosis and previous fracture of the hip complained of dull low back pain of three years'



Figs. 1a and 1b. AP and lateral roentgenograms showing position of biopsy instrument during biopsy of the patient in Case 2.

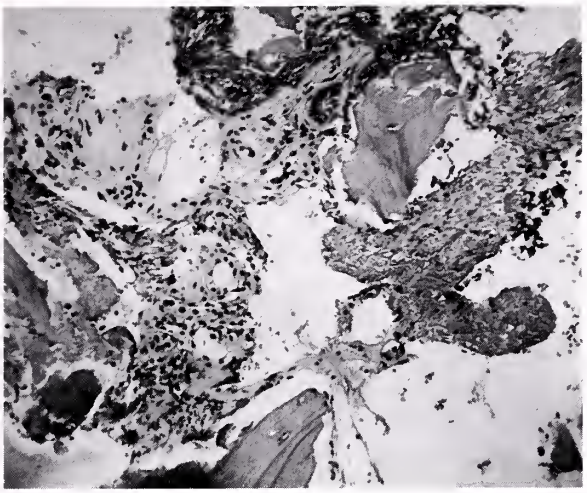


Fig. 2. Photo-micrograph of tissue removed from the patient in Case. 2. (H & E Stain x 430). Note glandular formation.

duration with some increase in severity in the preceding six months. X-rays showed collapse of L-2 with suspicion of a lytic area. Physical exam showed no evidence of a tumor, and laboratory work was normal. Biopsy of L-2 vertebral body (Figs. 1a and 1b), showed metastatic adenocarcinoma (Fig. 2).

Radiotherapy has resulted in no progression over the past one and one-half years. Despite extensive and repeated search for the source of this tumor, the primary has never been found. Proper therapy in this case prevented the problems to be expected from destruction of L-2.

Summary

The elderly population experiences high incidence of two diseases: severe osteoporosis with back pain often associated with vertebral changes in x-ray and malignancy often involving the axial skeleton. X-ray differentiation is often impossible. Laboratory studies for increased bone activity, such as sedimentation rate, alkaline phosphatase, Strontium 89 uptake, are non-specific. One must often treat symptomatically and expectantly, rather than specifically. Back pain associated with present or past cancer elsewhere forces one to consider vertebral metastasis. Closed vertebral biopsy offers a safe specific answer to these questions obviating more elaborate and time-consuming work-ups.

These ten consecutive biopsies were performed in the St. Patrick Hospital which has an average census of 180 and demonstrates the practical role of this procedure in a small community.

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Alveolar soft-part sarcoma

A case report

S. A. Reynolds, MD, and W. K. Solonar, MD, Havre, Montana

Alveolar soft-part sarcoma is an easily mislabeled tumor the treatment of which can, therefore, often be incorrect. The histogenesis of this tumor is an area of continuing controversy in morphologic pathology. This paper demonstrates the basis for management of rare tumors of this type in the small community hospital.

ALVEOLAR SOFT-PART SARCOMA, an infrequently encountered neoplasm, is one which can closely mimic a number of other tumors, both benign and malignant. Its histogenesis is still controversial. A case report of one such tumor encountered in the community setting follows.

CASE REPORT

A 16-year-old Caucasian girl was admitted to Northern Montana Hospital in October 1971 with a two-year history of a slowly growing mass in the left anterior flank, which had recently become uncomfortable upon rodeo riding. She had experienced no weight loss, night sweats, anorexia, cough, hemoptysis, or bone pain. On initial examination a 4 cm. x 6 cm. dome-shaped, smooth, firm mass was found in the left anterior flank 8 cm. above the anterior-superior iliac spine. The deep surfaces of the mass could not be well delineated, and it was only slightly movable. There were no palpable regional nodes and no other distant abnormal physical findings. Laboratory evaluation revealed a normal hemogram, urinalysis, alkaline phosphatase, chest x-ray, barium enema, and intravenous pyelogram.

After admission, local excision of the pseudo-encapsulated mass, which was found to reside within the internal oblique muscle layer, was carried out. Frozen section diagnosis of alveolar soft-part sarcoma was made, but definitive surgical therapy was delayed pending confirmation of the diagnosis by consultation. She was readmitted two weeks later, and an en bloc excision of the full thickness of 50 per cent of the left abdominal wall, extended to include 75 per cent of the internal oblique, was carried out with contiguous en bloc removal of the left iliac crest and its adjacent inner table. Marlex mesh was used for immediate reconstruction. The patient's postoperative course was unremarkable, and a three months' postoperative chest x-ray did not reveal abnormalities. She has continued to be free of systemic symptoms and bone pain.

The initially excised mass grossly consisted of an oblong, soft, apparently well encapsulated growth, the surface of which was covered by normal-appearing skeletal muscle. The mass measured 6 cm. x 4 cm., and on serial section was gray to yellowish tan and fairly homogenous, except for a few areas of recent hemorrhage. Microscopic examination revealed the tumor to be composed of polyhedral epithelial-like cells arranged in a solid alveolar (Fig. 1) and pseudo-acinar pattern (Fig. 2), the cell clusters being separated by delicate fibrovascular stroma. The tumor cells themselves were ill defined, relatively clear, with fine and coarsely granular eosinophilic cytoplasm. The nuclei were large and vesicular with prominent nucleoli. There were areas closely mimicking renal cell carcinoma with nests of both solid anaplastic (Fig. 3) and of clear-type cells. The latter also showed similarity to clear cell adenocarcinoma of the ovary (Fig. 4). There was evidence of true venous invasion in some sections (Fig 5).

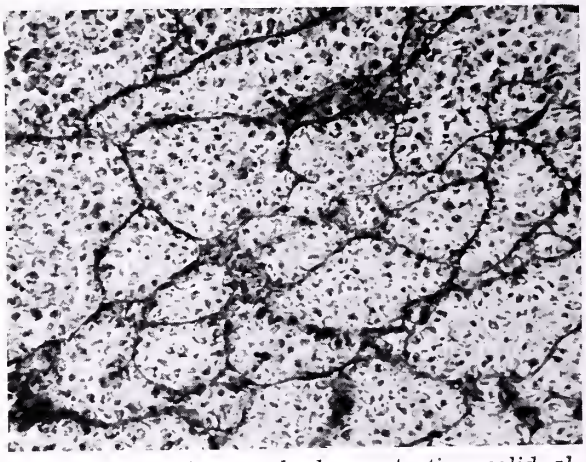

Fig. 1. Photomicrograph demonstrating solid alveolar pattern characteristics of this tumor.

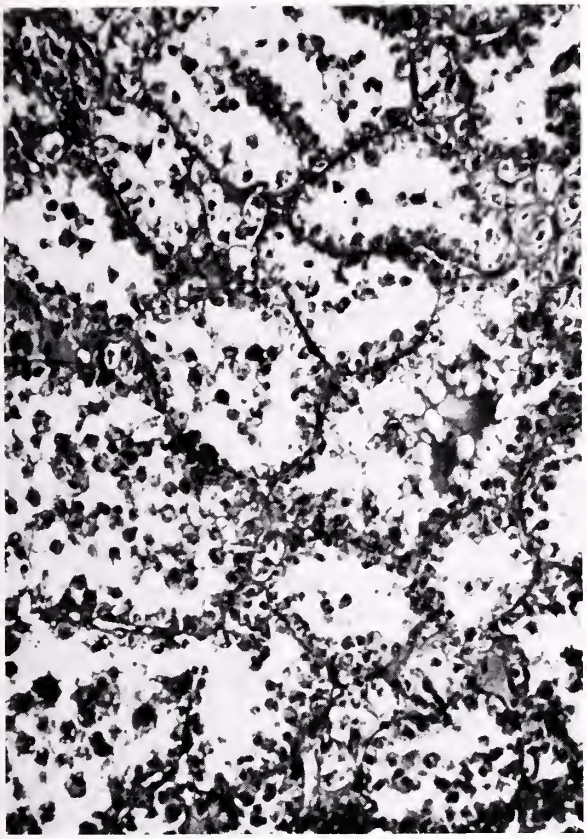

Fig. 2. Photomicrograph illustrating a pseudo-acinar pattern.

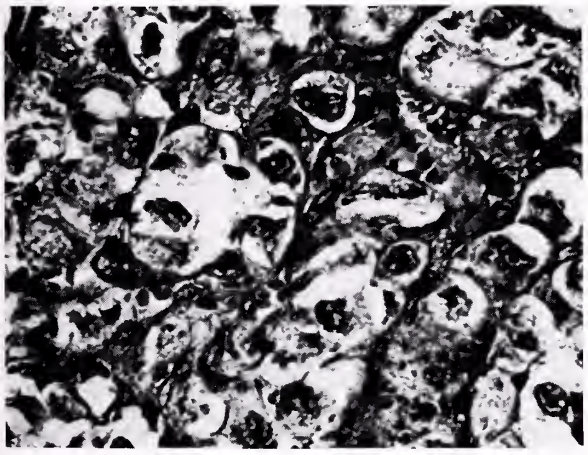

Fig. 3. Microscopic pattern mimicking renal cell carcinoma, solid anaplastic type.

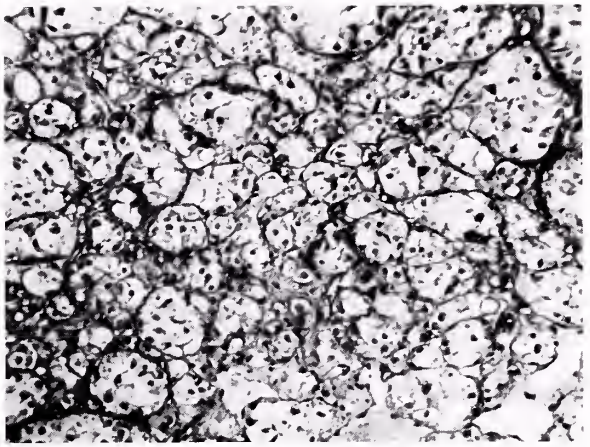

Fig. 4. Microscopic pattern mimicking renal cell and ovarian carcinoma, clear cell type.

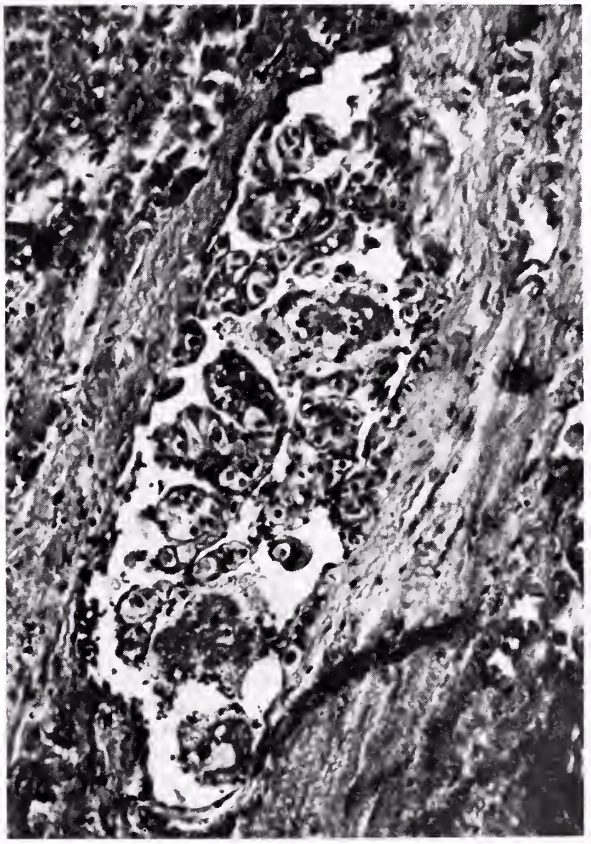

Fig. 5. Microphotograph demonstrating true venous invasion.

Clinical Characteristics

Alveolar soft-part sarcoma was first described by Christopherson et al in 1952. The tumor has since been reported on a worldwide distribution, and the largest series reported is 53 cases. The neoplasm presents, generally, as a slow-growing or stable mass located within an existing muscle, primarily in the extremities or retroperitoneal space. It is found predominantly in females and has at times been described to have a right-sided laterality. The average age of onset in females is 20 years, and the average age of onset in males is 30. The initial lesion is rarely spontaneously painful early in its course, although it sometimes may be uncomfortable upon activity.

The clinical course is one of an indolent, yet apparently always fatal, neoplasm which with time shows a progressive linear increase in the incidence of clinical metastases. The most frequent sites of metastases are lung (42 per cent), bones (19 per cent), and brain (15 per cent). The pulmonary metastases are of rounded well defined appearance and are usually multiple. In the skeleton the tumor reveals its presence by a sharply delineated osteolytic defect similar to metastases from renal adenocarcinoma. The metastases are not known to cross epiphyseal lines. The prognosis has been described as being best in females whose disease had its onset under the age of 20 years. Survival figures from the largest series of alveolar soft-part sarcoma indicate an 83 per cent two-year survival, 59 per cent five-year survival, and 47 per cent ten-year survival. However, the patient who survived the longest died of disseminated sarcoma in the twentieth year. There are apparently no known lifetime cures.

Clinically, alveolar soft-part sarcoma is often confused with other tumors, both benign and malignant. It has been confused with endothelioma, granular-cell myoblastoma, liposarcoma, and alveolar rhabdomyosarcoma. Significantly, alveolar soft-part sarcoma has often been mislabeled metastatic adenocarcinoma of the kidney, liver, and adrenal, or metastatic clear-cell carcinoma of the ovary. This has often resulted in delayed or erroneous treatment and, on occasion, in fruitless exploratory operations in an attempt to determine the site of primary disease.

Pathology

Over a period of 17 years, 12 cases of a puzzling soft-tissue tumor were accumulated in the "file of unclassified tumors" at the Memorial Center in New York. In 1952 Christopherson, Foote, and Stewart published the accumulated pathological and clinical data concerning these 12 cases, which they felt were unlike any tumor of which they were aware. Common to all the tumors was their occurrence in skeletal muscle. They appeared to be malignant, since six patients developed metastases and four died. The gross appearance was not diagnostic, but there was one striking feature in all of the tumors studied —it was the alveolar, or organoid arrangement of the tumor cells and the uniformity and similarity of the pattern in all tumors. They refrained from classifying the tumor in a known histologic type and coined the descriptive term "alveolar soft-part sarcoma". The most pertinent aspect of this study was to draw attention to the uniqueness of this tumor and to give it a histogenetically noncommital designation.

Their caution can be better understood if one is aware of the fact that in the field of oncology, the most controversial, least understood, and most confusing are the soft-tissue tumors. In 1958, a series of 717 soft-tissue sarcomas were studied with the surprising result that the histologic type could not be determined in 261 cases.

The classification of soft-tissue tumors according to different histologic types is of more than academic importance, for the various types differ markedly in their clinical course. The paragangliomas, such as carotid-body tumors, are a well-studied group of tumors which are microscopically strikingly similar to the alveolar soft-part sarcoma. It is, therefore, not surprising that there were several publications dealing with cases of alveolar soft-part sarcoma suggesting that they represent a malignant form of paraganglioma. There was, however, one disturbing fact; the alveolar soft-part sarcoma occurred most commonly in the extremities, and despite extensive studies no paraganglia-like structures could be found in normal extremities.

In 1964 Shipkey and associates showed, with the help of the electron microscope, definite and specific crystalline structures in the cellular components of alveolar soft-part sarcoma which were not seen in other tumors. Fisher and Reidbord, in 1971, compared the ultrastructural features of the cells of benign rhabdomyoma and a muscular disorder (nemaline myopathy) and found a striking similarity between the cytoplasmic crystals in alveolar soft-part sarcoma and the rods observed in cells of these two benign diseases. They also described similarity of these

crystals with the Z-band material in the myofibrils of normal skeletal muscle. They, therefore, suggested that alveolar soft-part sarcoma is of skeletal muscle origin. However, Welsh and associates in 1972 compared the ultrastructure of alveolar soft-part sarcoma with carotid-body tumors and the normal carotid body and found a host of remarkable similarities. They concluded that the alveolar soft-part sarcoma and paraganglioma, or carotid-body tumor, are of related histogenesis. They are hopeful that displaced paragangliomas will be discovered in the skeletal muscles of the extremities.

The most important aspect of the fairly extensive investigation into the nature of this tumor is that it remains a unique soft-tissue sarcoma with a specific diagnostic cytoplasmic crystalline ultrastructure.

Therapy

Surgical excision is the primary treatment of choice. The appearance of the lesion at the operating table may suggest local growth with encapsulation, but this finding should not lure the surgeon into performing a less than radical procedure, even though a large proportion of the patients are young females. Radical regional excision is the initial procedure of choice; and until further statistics are gathered, primary amputation should be carried out where indicated.

Radical irradiation therapy, while not at this time the primary therapeutic modality, has probably not had an adequate clinical trial. Irradiation therapy results in a slow regression of the tumor, and pathologic studies have indicated significant tumor necrosis secondary to irradiation therapy only. Those studies available, generally with less than radical irradiation, have indicated survival of a significant per cent of the neoplastic cell mass; and clinical follow-up has shown suppression of recurrences or metastases, but no reported cases of cure.

Thio-TEPA has been reported successful in at least one patient for 47 months, when given in an initial course of 2 mg. per kg. over 16 days, followed by additional evenly spaced courses. Regional chemotherapy with various agents has resulted in a reduction in tumor size but not in complete disappearance or sustained repression. Actinomycin D, Prednisone, Cytoxan, and anabolic steroids have been used in combination or individually, without apparent sustained effect.

Conclusion

Presented is a case of an infrequently encountered tumor, alveolar soft-part sarcoma, as managed in the community hospital. A brief review of the histologic characteristics, pathology, clinical course, and treatment reveals a rare sarcomatous lesion of undetermined histogenesis, presenting primarily in young women, whose clinical course is slow but apparently invariably fatal. Treatment at this time is primarily radical surgical excision when first encountered, with a choice of systemic Thio-TEPA or local radical irradiation as palliative therapy for recurrences. •

ACKNOWLEDGMENT

We would like to thank Dr. Lauren Ackerman of the Washington University School of Medicine, St. Louis, Missouri, and Dr. Bauermeister of the Virginia Mason Clinic, Seattle, Washington, for their consultation in confirming the diagnosis. We would also like to thank Dr. Charles R. Smart of Salt Lake City, Utah, for clinical consultation and Dr. J. Pfaff, Jr., of Great Falls, Montana, for assistance in preparing photomicrographs.

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Multiple endocrine adenomatosis*

Phillip E. Griffin, Jr., MD, Billings, Montana

A case report with masculinizing ovarian tumor associated with thyroid and parathyroid adenomas.

MULTIPLE ENDOCRINE ADENOMATOSIS is characterized by hyperplasia or tumor of two or more endocrine glands. There is usually increased function of the glands involved. The disorder is familial and several large kindred studies have established that it is transmitted as an autosomal-dominant gene with virtually complete penetrance.[1,2]

The most commonly involved glands are the parathyroid, the pancreas, and the pituitary. Less commonly, the thyroid, adrenal cortex, and adrenal medulla are associated. Occasionally carcinoid tumors occur in this syndrome.

The following case is of interest because of the association of a masculinizing ovarian tumor with parathyroid and thyroid adenomas, a rare combination of multiple endocrine adenomatosis.

CASE REPORT

The patient was a 65-year-old woman when first seen on May 22, 1969 for a general physical evaluation. She presented with numerous complaints including nocturia two to three times, some stress incontinence, and intermittent epigastric distress which had been present for several years. There was no history of epigastric night pain, no history of previously diagnosed peptic ulcer, and no symptoms of gastrointestinal bleeding.

Past medical history was interesting in that she had consulted a physician in another city in August 1966 for evaluation of a mass in the right side of her neck. She subsequently underwent right subtotal thyroidectomy, at which time several thyroid adenomas were noted in the resected portion of thyroid gland. There were no symptoms of thyrotoxicosis prior to surgery, and she did not take thyroid replacement following surgery.

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In July 1967, she consulted a physician because of a three- to four-month history of increasing facial hair, deepening voice, and enlarging clitoris. At laparotomy, a "golf-ball" sized, right ovarian tumor was resected. Her postoperative course was uneventful with some resolution of masculinizing signs.

Family history revealed that her parents had died in their sixties, her mother of chronic renal disease and her father of an accidental cause. She had eleven siblings, seven of whom were living at the time of her examination. The four deceased siblings died between 1918 and 1924 of unknown causes. The other seven siblings were thought to be in good health, but geographic scattering precluded accurate knowledge of their current health histories. There was no family history of peptic ulcer or renal tumors.

Physical examination revealed a slightly obese woman who appeared to be her stated age. Her blood pressure was 170/86. A well-healed, anterior, cervical scar was noted. No cervical masses or nodes were palpable. The only other remarkable physical findings were clitoral hypertrophy and severe cystourethrocele. No hirsutism was noted.

Laboratory findings showed a normal blood count and urinalysis. A fasting blood sugar, blood urea nitrogen, serum cholesterol, serum uric acid, and a protein-bound iodine were all within normal limits. However, the serum calcium performed at the same screening procedure was 12.5 milligrams per cent. This was repeated on May 27, 1969, and the value was 13.2 milligrams per cent with a serum phosphorus of 2.4 milligrams per cent. The alkaline phosphatase was 6.7 King-Armstrong units. A repeat calcium one week later was 12.4 milligrams per cent and the phosphorus 2.1 milligrams per cent.

The patient was subsequently admitted to the Billings Deaconess Hospital where a metastatic bone survey, a serum protein electrophoresis, and upper gastrointestinal x-rays were normal. A 24-hour urine for 17 ketosteroids was 5.9 milligrams per cent per 24 hours. Several other serum calcium and phosphorus determinations were performed and persistent hypercalcemia and hypophosphatemia were noted.

On June 13, 1969, neck exploration was carried out. A one-centimeter by seven-millimeter parathyroid adenoma was removed from the left, lower pole of the thyroid area. The left, upper parathyroid gland was identified and appeared

normal. Right thyroid exploration could not be carried out because of dense adhesions from her previous right subtotal thyroidectomy. Postoperatively, her serum calciums rapidly returned to normal, and a value on June 14, 1969 was 9.6 milligrams per cent and on June 16, 1969 it was 9 milligrams per cent. Her serum phosphorus values returned to 3.7 and 3.6 milligrams per cent respectively.

Histologic sections of the tumor showed a typical chief cell parathyroid adenoma. Subsequently, sections of her ovarian and thyroid tumors were obtained from an outside hospital. The pathology of the ovarian tumor was variable with some sections showing predominance of large, vacuolated, lipoid cells which bore considerable resemblance to adrenal-cortical cells. Other sections of the same tumor showed uniform cells with eosinophilic cytoplasm resembling interstital cells of the testes. This histologic variability was felt to be typical of a lipid-cell tumor of the ovary. Sections of the thyroid tissue showed several thyroid adenomas.

Discussion

The diagnosis of multiple endocrine adenomatosis in the patient under discussion is justified by the fact that three endocrine tumors were surgically removed over a three-year period. The thyroid adenomas were asymptomatic except for the presence of a palpable mass in the neck. The ovarian tumor caused significant changes in the patient's physical being but with regression of most of these findings at the removal of the right ovarian tumor. Her hyperparathyroidism was responsible, perhaps, for the nocturia that she was having and perhaps also for some of her nonspecific complaints. However, she did not have any symptoms of bone disease. The hyperparathyroidism was discovered because of routine serum calcium screening at the time of her complete examination in May of 1969.

The family history was unrevealing of endocrine tumor or peptic ulcer disease although the death of her mother from renal disease may be significant. Geographic scattering of the siblings and lack of current health history in these siblings made a reliable estimate of a familial disease difficult.

The unique fact about this patient is the presence of a masculinizing ovarian tumor in association with two other endocrine tumors. In reviewing the literature on this subject, only one other case report has been found.[3]

Weichert suggested in a 1970 article that peptide-secreting endocrine glands were of neural ectodermal origin.[4] He also proposed that multiple endocrine adenomatosis was a dysplasia of neural ectoderm. This hypothesis would explain the occurrence of multiple endocrine adenomatosis involving the pituitary, pancreas, parathyroid, thyroid, and adrenal medulla. Carcinoid tumors would also fit into this hypothesis. However, the steroid-producing endocrine glands, including the adrenal cortex and the gonads, do not fit into this scheme. This case would suggest that occasionally the MEA syndrome occurs in endocrine glands of non-neural ectoderm origin.

One likely reason for the lack of previous reports concerning ovarian tumor in the MEA syndrome is the rarity of masculinizing tumor of the ovary in general and of lipid-cell tumor of the ovary in particular. The largest series of lipid-cell tumors of the ovary was reported by Taylor and Norris in a 1967 cancer article.[5] They reported 30 cases collected over a 20-year period at the Armed Forces Institute of Pathology. These authors emphasized that lipid-cell tumors contained cells resembling adrenal cortical cells, hilar cells, and luteinized ovarian stromal cells. One cell type generally predominates. Other names given to this tumor include hilar-cell tumor, adrenal-rest tumors, and stromal luteoma. They are thought to originate from ovarian stromal cells within the ovarian medulla.

Summary

A 65-year-old woman with parathyroid, thyroid, and ovarian tumors is reported as a unique combination of multiple endocrine adenomatosis. •

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Drug abuse in a small community

Thomas J. Malee, MD,* Glendive, Montana

An unusual case of drug intoxication in a child is reported.

THE PROBLEM OF DRUG ABUSE is well recognized in our cities and appropriate programs have been adopted to combat the problem. Drug abuse has invaded our smaller communities as well, and it involves the full spectrum of drugs from marijuana to heroin. Close cooperation between physicians, school officials, law enforcement officers, and welfare personnel is a must in identifying the problem and instituting a program of education to the general public, including the young people.

CASE REPORT

At 12:30 p.m. a five-year-old mulatto girl who resides in the community was brought to the Emergency Room of the hospital by a police squad car, accompanied by her mother. The mother stated that earlier in the morning she had told her daughter to go to the medicine cabinet and take her iron capsule and vitamin pill. A short while later she noticed the child had gone to sleep and when she was unable to arouse her, she called the police.

The child was comatose. Temperature was 97.6 degrees. The pupils were pin point and did not react to light and accommodation. Deep tendon reflexes were hyperactive, and stimulation of the skin induced convulsive seizures. Heart sounds were normal, rate was 110 and regular, no murmurs were noted. Respirations were 18, regular, and fairly deep. The respiratory sounds were normal. The abdomen was soft, non-tender, and no masses were palpable. The child showed no cyanosis.

A stomach lavage tube was passed, care being taken to maintain a good airway. The stomach was lavaged until the contents were clear. The material removed from the stomach had a peculiar odor which resembled weak paraldehyde. The child was transferred to Intensive Care where she was placed on a monitor and IV fluids (five per cent dextrose in water) was begun. A retention catheter was inserted into the bladder.

The mother, a known drug user, brought in bottles from the medicine cabinet. There were two varieties of vitamins, one bottle of iron capsules, and a prescription of Placidyl (ethclorvynol), 750 mgm. The mother had had 30 Placidyl capsules prescribed to her by a physician the day before. Thirteen capsules remained in the bottle, and the mother admitted to taking one capsule the previous night. A Placidyl capsule was opened. The odor from it was identical to the odor from the material lavaged from the child's stomach.

The Poison Control Center in Seattle, Washington was contacted, and it was decided that forced diuresis and peritoneal dialysis would not be of benefit. Nalline 1.8 mgms. was given IV. Ten hours after admission the pupils were reacting slugglishly to light. By the following morning, the child would awaken at intervals and was confused, fussy, and disoriented. She was disoriented, uncoordinated, and fussy the remainder of the second hospital day, although she was now taking fluids. On the third day she was moved from Intensive Care and was eating, but she was still uncoordinated and would fall asleep quite frequently. On the fourth hospital day, the child was alert, talkative, and coordinated.

The mother had spent much time at the hospital and was visiting with her on the morning of the fourth day. The mother appeared to be very drowsy. At 10:30 a.m. the child was found comatose. The stomach was lavaged again until the returns were clear. Again, the lavage material had the particular odor of Placidyl. This material, along with blood, was sent to the laboratory for analysis.

The child had pin point pupils and hyperactive reflexes. No medications had been ordered for the child other than the IV fluids and the Nalline ordered on the first day of hospitalization. The child responded to stimuli by 10:00 p.m. although she was disoriented and confused.

Laboratory analysis of gastric content was positive for Amobarbitol, Pentobarbitol, and Butabarbitol group. A Placidyl blood level was 18 mgms. per cent. While in the hospital she had

*From the Yellowstone Medical Clinic, 507 N. Merril Ave., Glendive, Montana.

been given a combination of barbitol and Placidyl by someone other than hospital personnel, presumably her mother.

The second episode of drug overdose was not as deep and sustained as the initial overdose and the child responded well. The local welfare department asked the court for and was granted custody of the child. The mother has been referred to the regional mental health clinic for evaluation and care.

Summary

Dialogue between physicians and school officials, law enforcement and governmental social agencies is effected easily on a local level in smaller communities. Poison control centers are readily available with their advice.

In this case, the background of drug abuse by the mother of the child was well known for at least two years. This fact was a definite clue into the nature of the coma in the child, although the exact nature of the drug was unknown.

Peritoneal dialysis or diuresis was not needed in this case although they are useful procedures in some drug intoxications and can be done in smaller hospitals. •

Swimming pool granuloma

A case report

Wm. James Dunlap, MD, Donald E. Murray, MD, and Robert J. Seim, MD, Missoula, Montana

An unusual dermatologic condition, this time acquired in a fish tank.

WITHIN THE PAST two decades it has become evident that there are a great number of mycobacteria that are human pathogens. Many such organisms, once thought to be contaminants or pathogenic only to lower animals, have now been established as human pathogens. Swimming pool granuloma is an excellent case in point.

An organism isolated from granulomas of the elbows and knees of swimmers by Linnel and Norden[1] in 1954 was named *Mycobacterium balnei.* The similarity between *M. balnei* and *M. marinum,* which was first isolated from diseased fish, has been established. Toxonomic studies have failed to reveal any differences between them. Since the name *M. marinum* has priority, it is now the accepted name for this organism.[2] To date the largest reported epidemic occurred in Colorado in 1959[6] in which 209 cases were reported by Philpott et al.[3]

The source of this epidemic was a hot, mineral, spring-fed, non-chlorinated swimming pool. *M. marinum* (*balnei*) was recovered both from cases and from the pool. It is of interest to note that the temperature of the pool was similar to the 30-33°C optimal growth temperature of *M. marinum* (*balnei*).

CASE REPORT

L. B., a 34-year-old, healthy, white male, abraded the dorsum of his left hand while playing "backyard" football in late August 1971. That same evening he cleaned his tropical fish tank and recalled that the mechanical action of the cleaning caused irritation of the abrasion. At this time the patient noted that one of his tropical fish had bullous lesions and the fish died two weeks later.

In mid-September he sought medical attention because the abrasion site developed two tender, granulomatous nodules. He was treated with tetracycline and local incision and drainage. Because of persistence of the lesions, he was later seen in dermatologic consultation; the possibility of deep mycotic infection such as Sporotrichosis or Majacchi's granuloma was considered. Littman fungal cultures, KOH preparations, and Wood's light examination were negative.

Subsequent I and D and trial therapy with erythromycin, and later doxycylicine, was employed with only minimal success. Because of persistence and deeper progression of the granulomatous nodules, an orthopedic consultation resulted in surgical exploration and debridement. Once again the lesions recurred. A rapidly growing, atypical, acid-fast organism was cultured from the lesion. Further subcultures were identified as *M. marinum (balnei)* by the HEW laboratory of the Center for Disease Control of Atlanta, Georgia.

Ultimately a wider excision with full thickness grafting was carried out by a plastic surgeon. Double-blind intradermal skin tests were performed, and positive results for *M. marinum* and *M. tuberculosis* were obtained. Biopsy specimens of the excision demonstrated a typical non-caseating granulomatous reaction and was positive for acid-fast bacillus.

Discussion

M. marinum (balnei) is a rare cutaneous infection in man, characterized by recurrent granulomas. The source of infection in this case was proved to be infected fish in a tropical fish tank, and the organism gained entry through recently abraded skin. Gould et al[4] noted that generally no AFB were ever seen in the histologic sections made from numerous biopsies. It is of interest that we found AFB in our biopsy specimen.

M. marinum is sensitive to some of the antituberculous drugs,[4,5] and to some of the more recent drugs developed to combat drug resistant tuberculosis, such as Rifampin. *M. marinum (balnei)* granuloma are generally thought to be self-limiting lesions which undergo spontaneous involution. Recent evidence refutes this.[4] The disease can be treated with drugs or surgery. Because of persistence and progression in this case, wide surgical excision was performed.

Summary

A rare case of cutaneous infection by *Mycobacterium marinum (balnei)* from a diseased tropical fish has been presented. •

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Chronic otitis media

James E. Jarrett, MD, Missoula, Montana

Chronic otitis media is a disease with serious and often life-threatening sequelae. Early recogntion of chronic tympanic membrane perforations with definitive corrective middle ear microsurgery may preserve or restore hearing and prevent other complications.

SINCE THE ADVENT OF antibiotics, the surgical treatment of acute mastoiditis has become rare. Nearly all episodes of acute otitis media and acute mastoiditis are now controlled by antibiotics, and the frequency of chronic otitis media as sequelae to childhood infectious diseases has diminished. The challenge now is the treatment of the child or adult with a tympanic membrane perforation and chronic or recurrent otorrhea. Chronic otitis media may undergo an acute exacerbation with an upper respiratory infection or following exposure to moisture from swimming or bathing.

Etiology

In adults, chronic otitis media is usually the result of a childhood infection in the pre-antibiotic period. In children, chronic otitis media is no longer a common complication of acute infectious disease, but those cases that exist are the result of inadequately treated or resistant acute or subacute otitis media, with dysfunction of the eustachian tube. The eustachian tube dysfunction may be secondary to mechanical obstruction or obstruction from atopic allergic reactions. Chronic infectious and hypertrophic tonsillitis and adenoiditis may obstruct the eustachian tube orifice by inflammation, edema, and interruption of lymphatic drainage. A congenitally narrow eustachian tube may also be a factor. Abnormal nasopharyngeal physiology, chronic sinusitis, airway obstruction, or mass lesions may also contribute to eustachian tube dysfunction. Traumatic perforations may also result in chronic otitis media.

Complications

Chronic tympanic membrane perforations can develop cholesteatoma secondary to growth of squamous epithelium into the middle ear, attic, antrum, and mastoid. The propensity of these lesions to produce labyrinthitis, facial paralysis, and intracranial infection stems from their ability to destroy bone by enzymatc action and the presence of infection associated with the cholesteatoma.

Hearing loss may be either conductive and/or sensorineural in type. It may vary greatly in degree from a very minimal loss to large conductive losses or total sensorineural deafness. The conductive component is produced by the perforation itself, by fluid and debris in the middle ear space, by interference in function of the ossicular chain, or by disruption of the chain. Sensorineural loss may be secondary to toxic effects upon the cochlea from the infection. Total deafness may result, secondary to erosion into the inner ear.

Facial paralysis may result from direct involvement of the facial nerve. The incidence of an exposed facial nerve within the middle ear due to incomplete formation of the bony fallopian canal is significant, thereby providing easy access for infection.

Labyrinthitis, meningitis, brain abscess, and other intracranial infectious complication may result from spread of the infection by direct continuity or through venous channels with thrombophlebitis. A previous history of skull fracture with involvement of the

temporal bone could also provide a route for intercranial spread of the infection because temporal bone fractures heal by fibrous union.

The psychologic effect upon a child or adult with constant or recurring foul-smelling drainage from the ear and the restrictions thereby placed on normal activity may be significant.

Therapy

The primary objective of the treatment of chronic otitis media is to attain a safe, dry, clean ear. Secondarily, it is to preserve and restore hearing. Attention is given to possible contributing factors in the nose and pharynx. This may be disturbed nasal physiology secondary to nasal septal deviations and airway obstructions. Nasal and choanal polyps, chronically hypertrophied and inflamed adenoids and tonsils, and various benign and malignant tumors may be factors contributing toward disturbed eustachian tube function and thereby predisposing or precipitating the chronic otitis media. Chronic sinusitis with a chronic purulent post-nasal discharge may also be significant. In allergic patients, the treatment and control of their allergies may be of prime importance. Hypogammaglobulinemia is not a common factor in a child who is refractory to treatment but must be considered.

The ear must be kept dry in order to prevent reinfection. When the infection has been controlled, definitive therapy entails microscopic middle ear surgery with reconstruction of the middle ear conductive mechanism whenever possible.

CASE REPORT

A 59-year-old Indian male had history of left chronic otitis media since early childhood. He recalled left ear trauma from a baseball bat during childhood but denied loss of hearing in his left ear until approximately age 30. For one year prior to evaluation, he had noted recurring episodes of spontaneous vertigo. These attacks were increasing in frequency, but he denied seizure, loss of consciousness, headache, fever, visual symptoms, or other symptomatology. The attacks were not related to position changes or activity. He denied any allergies. He admitted to smoking half a pack of cigarettes per day and moderate intake of alcohol. Physical examination revealed a well developed, well nourished male in no acute distress. His sensorium was clear and he was noticeably hard of hearing. The right ear and tympanic membrane appeared normal. The left ear canal was totally occluded by cheesy, foul-smelling yellow debris characteristic of cholesteatoma. There was no evidence of residual tympanic membrane or ossicles. The posterior, superior canal wall appeared dehiscent. No ossicles were identified. Although the patient had no spontaneous nystagmus, alternate compression and release of the tragus over the meatus precipitated nystagmus and vertigo. The Weber test lateralized to the right. Rinne was positive at 512 on the right and no response on the left. Audiogram revealed total sensorineural deafness on the left and a moderately severe sensorineural deafness on the right with a speech reception threshold of 70. The remainder of the physical examination and neurological examination was unremarkable. Mastoid x-rays revealed an extensive lytic defect characteristic of cholesteatoma with involvement of the attic, antrum, and mastoid (Fig. 1). The left horizontal semi-circular canal appeared skeletonized.

Fig. 1. Mastoid x-ray, showing extensive lytic defect on left, characteristic of cholesteatoma (arrow).

Fig. 2. Gross specimen of cholesteatoma removed in reported case.

Hospital Course: The patient was placed on pre-operative antibiotics and on September 21, 1971 a left radical mastoidectomy and facial nerve decompression were performed. The posterior, superior bony canal wall was dehiscent. The cholesteatoma sac (Fig. 2) lined the entire middle ear, hypotympanum, attic, antrum, and mastoid. All mastoid cells had been destroyed and the cholesteatoma had eroded the bony plate medial to the sigmoid sinus exposing a small portion of posterior fossa dura. The fallopian canal was dehiscent in its horizontal and vertical portions, and there was granulation tissue involvement of the nerve sheath in its vertical portion. The cholesteatoma sac extended extensively into the hypotympanum and region of the jugular bulb as well as toward the petrous apex superior to the horizontal portion of the facial nerve and anterior to the labyrinth. The bone underlying the cholesteatoma sac was smooth and eburnated. The tegmen plate was intact. No ossicles were identified. The foot plate was intact. The dissection was terminated with removal of the cholesteatoma from the region of the horizontal semicircular canal. There was a bony dehiscence which was approximately 1 x 2 millimeters in size. There was a very slight and temporary leak of fluid presumably perilymph following removal of the cholesteatoma. The membranous labyrinth appeared intact. The fistula was covered with a temporalis fascia graft which was held in position with Gel-foam pledget impregnated with antibiotic solution. The middle ear was also lined with Gel-foam packing. The eustachian tube orifice was occluded with muscle and the bowl packed with a rose-bud dressing. The postoperative course was uncomplicated. The patient was up and about the day following surgery with only transient nystagmus and vertigo on assuming the upright position. Thereafter, he had no nystagmus or vertigo and the facial nerve function was normal. Follow-up ice water caloric studies were normal bilaterally.

Discussion

This patient illustrates several complications of chronic otitis media. He had developed a cholesteatoma which was enlarging and destroying bone. He had a total sensorineural deafness in the involved ear. With further progression of the disease, he would have developed facial paralysis. Intracranial extension of the disease could have occurred at any time.

Summary

Chronic otitis media implies a perforated tympanic membrane with recurring otorrhea. Complication may include hearing loss, intracranial infections, facial paralysis, labyrinthitis, and psychological or emotional disturbances. Definitive treatment is by microsurgery. Early recognition of the disease is of prime importance. A case presentation illustrates several complications of this disease. •

ACKNOWLEDGMENT

Special appreciation to Dr. Ed Buchanan for photography of the specimen and to Dr. Roger H. Lehman, Chairman, Department of Otolaryngology, Marquette University, for reviewing this paper.

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Familial hereditary nephritis*

John H. Reiter, MD, Missoula, Montana

Report of a family with an unusual renal disease

HEREDITARY NEPHRITIS WAS first fully described as a distinct clinical entity by Alport in 1927.[1] It has been regarded as an uncommon disease, but several recent reports[2,3] suggest that it is more common than generally appreciated. Hereditary nephritis is an inherited disorder characterized by an early onset of albuminuria and/or hematuria with frequent accompanying hearing problems and, less frequently, eye difficulty. Progression of the renal disease is more benign in the female than the male. Greater attention was paid to the entity of hereditary nephritis after Perkoff's report[4] in which four generations of descendants of a Morman were studied. Perkoff restudied new members of this family in 1958.[5]

We have had the opportunity to follow several members of a family with hereditary nephritis. The clinical presentation and the course in this family is fairly typical of the disease.

CASE REPORTS

Case 1. L. D., a 25-year-old white male was first known to have hematuria at age 13 when he and his brother were hospitalized for evaluation of this symptom. The patient and his mother were aware of "kidney trouble" since age five. A diagnosis of "chronic nephritis" was made. The serum creatinine was 2.0 mg. per cent on August 12, 1968. The patient felt well up until late 1969 when he began having headaches and easy fatigability. The patient had been on sodium restriction. Furosemide and Aldomet were added in August 1970. That same month the BUN was 58 mg. per cent. On September 9, 1970 the endogenous creatinine clearance was 20.5 cc/min/1.73^2 (normal being 80-120 cc/min/1.73^2), creatinine 3.2 mg. per cent, and a 24-hour urine protein was 7.0 grams. His BUN was 45 mg. per cent, uric acid 10.6 mg. per cent. Urine sediment showed a specific gravity of 1.008, RBC's, granular casts, and oval fat bodies. On November 2, 1970 his 24-hour urine protein was 7.0 grams, serum creatinine 3.4 mg. per cent, serum complement was normal, and LE preps were negative. Hematocrit was 34 per cent. Calcium, phosphorus, bilirubin, albumin, sugar, alkaline phosphatase, and SGOT were normal. IVP showed kidneys of equal size bilaterally, measuring about 11.5 x 6.0 cm. Audiogram showed a high frequency loss. A left percutaneous renal biopsy under fluoroscopic control was done on January 20, 1971 (Fig. 1). On September 24, 1971 the creatinine was 4.1 mg. per cent and endogenous creatinine clearance was 24 cc/min/1.73^2. His serum creatinine was 5.2 mg. per cent on November 29, 1971, with a BUN of 75 mg. per cent. Blood pressure was 130/90 on December 24, 1971 with Aldomet 250 q.i.d. and furosemide 40 mg. daily. He feels "reasonably well".

Case 2. J. D., the 23-year-old brother of L.D. was also initially evaluated for hematuria at age 11 at the same time as L. D. His urinalysis in 1960 was reported to have shown on one occasion 10-12 RBC and 6-10 WBC/HPF. He had 1+ albuminuria. The patient was seen September 15, 1970 for evaluation because of his brother's abnormal renal function. The patient felt well on his job of rather heavy and prolonged labor in a sawmill. Physical examination was normal, blood pressure 110/80. Urinalysis showed 5-10 RBC and 5-10 WBC/HPF,

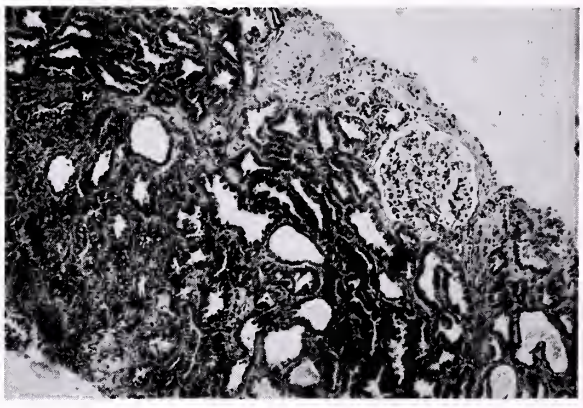

Fig. 1. Renal biopsy of Case 1 showing interstitial fibrosis and round cell infiltration with some glomerular involvement.

*From the Department of Internal Medicine, Western Montana Clinic, Missoula, Montana.

116 mg. per cent albumin, specific gravity 1.012. His uric acid was 11.3 mg. per cent, BUN 22 mg. per cent, and triglyceride 200 mg. per cent. A 24-hour endogenous creatinine clearance was 87 cc/min/1.73². His 24-hour urine protein excretion was 1.7 grams. Sedimentation rate, hematocrit, cholesterol, calcium, phosphorus, sugar, total bilirubin, albumin, total protein, alkaline phosphatase, and SGOT were normal. Chest x-ray was normal. The patient declined further investigation including IVP and renal biopsy. He has not been seen since September 15, 1970.

Case 3. D. D., the 13-year-old sister of L. D. and J.D., was found to have hematuria in 1963 at age seven. Microhematuria was present again in 1969. Urinalysis on September 15, 1970 showed 40-50 RBC/HPF with a number of granular casts, specific gravity 1.015, negative for albumin and sugar. Urine culture was negative. Endogenous creatinine clearance was 115 cc/min/1.73², serum creatinine 0.77 mg. per cent, and BUN 12 mg. per cent. Cholesterol, calcium, phosphorus, total bilirubin, albumin, total protein, uric acid, blood sugar, and SGOT were all normal. Serum creatinine was 1.0 mg. per cent on November 17, 1971. IVP was normal. Audiogram showed a hearing loss. The patient was asymptomatic.

Case 4. G. D., the mother of Cases 1, 2, and 3, has been aware of a family history of kidney disease. G. D. first knew she had albumin in her urine about 24 years ago. A serum creatinine was 1.2 mg. per cent on July 28, 1967. Urinalysis showed 4-6 RBS on June 9, 1970. IVP on September 8, 1970 showed a poor nephrogram and decrease in renal size bilaterally. BUN was 42 mg. per cent on September 21, 1970. A 24-hour urine protein was 2.07 grams, creatinine was 2.7 mg. per cent, and endogenous creatinine clearance was 25 cc/min/1.73². BUN on November 2, 1971 was 71 mg. per cent. Hematocrit was 36 per cent on December 15, 1971. Serum electrolytes were within normal limits. She has clinically remained well. Treatment for hypertension was started September 8, 1970. Audiogram shows a significant hearing loss.

Comments

The family described in this report still has most of its members living in Mississippi. Laboratory data is not available on the remainder of the family and details regarding extent of kidney involvement in other members is lacking (Fig. 2).

It has been felt that the mode of inheritance in hereditary nephritis is that of an autosomal dominant type of transmission. Other modes of inheritance have been suggested including a dominant trait, partially sex-linked. It is felt that males and females are equally affected but that the disease carries a more serious prognosis in the male.

The biopsy in Case 1 (Fig. 1) shows interstitial involvement with fibrosis and round cell infiltration; glomerular changes are present also but to a lesser degree. This is only one of several types of lesion that can

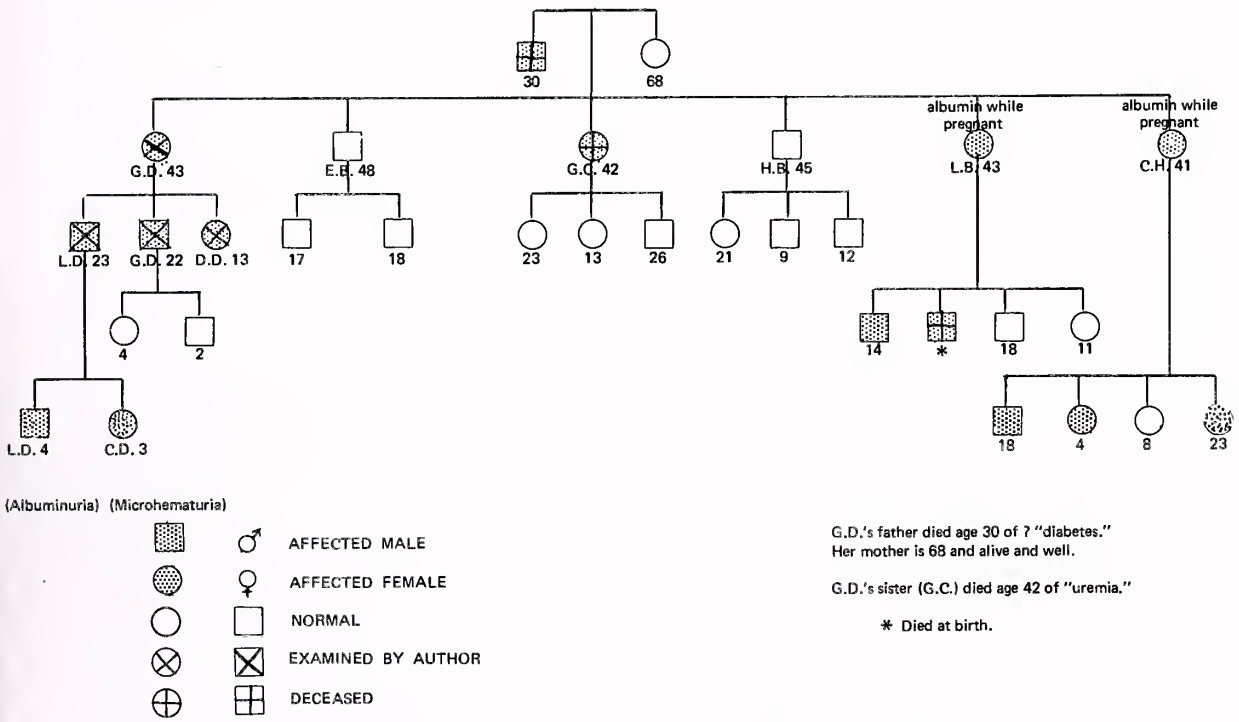

Fig. 2. Pedigree of family with familial hereditary nephritis.

be seen histologically. Renal pathologic changes are probably non-specific; in some cases the involvement is primarily glomerular while in others primarily interstitial. Biopsy is more useful in determining prognosis by the extent and nature of involvement than as a diagnostic tool.

Other abnormalities in association with the renal involvement have been described, the most common being nerve deafness. Eye abnormalities, particularly lens abnormalities, have been described but are apparently unusual. It is of interest that none of the members of the family examined had any complaints regarding a decrease in hearing. Audiograms should be included in the evaluation of a patient with suspected hereditary nephritis.

Renal manifestations are the most important aspect of hereditary nephritis. The renal manifestations are non-specific and may include those findings seen in any patient with renal disease such as hematuria, pyuria, proteinuria, and azotemia. Patients with hereditary nephritis can exhibit proteinuria in the nephrotic range as demonstrated by Case 1.

Summary

Patients with hereditary nephritis present a spectrum of involvement of renal function. Patients may be totally asymptomatic or may have only minor abnormalities in their sediment. Others may present with frank renal failure. A recent article[3] reported five new families with hereditary nephritis in a small geographic area within a three-year period. It is suggested that hereditary nephritis is more common than generally appreciated. It is important to confirm the diagnosis of hereditary nephritis for therapeutic considerations and for genetic counseling to affected members. •

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COLORADO

Dr. Hunt Named to Advisory Group of CWRMP

An orthopedic surgeon, Dr. Theodore C. Hunt of Denver, and a customer service representative with the Western Colorado Power Company in Montrose, J. Frank Casias, Jr., have been appointed to serve on the Regional Advisory Group of the Colorado-Wyoming Regional Medical Program (CWRMP). Dr. Hunt, who has been in Denver since his residency training at the University of Colorado Medical Center, has been an active member of several professional organizations, including the Mile High Medical Society, of which he is president. Mr. Casias, a native Coloradan, has been active in various community and regional programs for his area.

The Colorado-Wyoming Regional Medical Program, a regional arm of the U.S. Department of Health, Education and Welfare, was established in 1969 in cooperation with the University Colorado Medical Center to work with Colorado and Wyoming health professionals and institutions to improve the quality and delivery of health services in the two states. The program's goals and activities are determined by the Advisory Group, based on identified regional needs and priorities. Serving on the Group are practicing health professionals, medical educators, public health officials, and representatives of the consumer public.

Dr. Blount Was Lecturer

Dr. S. Gilbert Blount, Jr., professor and head of the Division of Cardiology at the University of Colorado School of Medicine, lectured on "Pulmonary Circulation at Leadville" at the Ninth InterAmerican Congress of Cardiology in San Francisco during the last week of April. He also participated as a member of a panel of speakers discussing various aspects of pulmonary heart disease.

Sterling, Colorado Doctor Honored

Dr. Edward E. Tennant of Sterling, Colorado was named a Fellow of the American College of Radiology for his outstanding work in medicine and for his contribution to radiology. Dr. Tennant, who is affiliated with Logan County Hospital in Sterling and Colorado General Hospital in Denver, was cited at a Convocation during the College's 49th Annual Meeting in Miami Beach.

Local Dermatologist Appointed To Higher Position

Dr. Marvin D. Nelson, Denver dermatologist, has been promoted to associate clinical professor of dermatology on the volunteer faculty of the University of Colorado School of Medicine. Dr. Nelson, who received his MD degree from the University of Nebraska in 1947 and served his internship at Colorado General Hospital in 1947-48, joined the medical faculty in 1954 as a clinical instructor and was promoted to assistant clinical professor in 1960. Dr. Nelson is affiliated with several medical and specialty societies on both the national and regional level.

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NEW MEXICO

Dr. Brogdon to Chair Commission

Dr. Byron G. Brogdon, professor and chairman of the department of radiology at the University of New Mexico School of Medicine, was elected Chairman of the Commission of Public Relations for the American College of Radiology on April 5. Dr. Brogdon has been with the University of New Mexico since 1965.

UTAH

Medline Computer Service Now Available for Utah's Medical Researchers

The Spencer S. Eccles Medical Sciences Library at the University of Utah Medical Center is now equipped to provide local medical researchers with instant bibliographic information taken from the data bank of a computer located in Bethesda, Maryland, at the National Library of Medicine. A similar service available to our readers through the Pacific Northwest Regional Health Sciences Library was reported in our March issue. Currently available to researchers through this computerized bibliographic search service known as MEDLINE, is information about 400,000 articles that have appeared in 1,106 journals. A maximum of 600,000 journal citations is the capacity of the system, which now contains information dating from January 1969 to the present. There are future plans to also include in the data bank bibliographic material about books cataloged at the National Library of Medicine.

If a requested bibliography is short, it can be completely printed out by the portable computer terminal for immediate use. If it is rather lengthy, it can be printed partially, with the complete print-out to be mailed from the National Library of Medicine within a week. The material listed on most bibliographic is available at the Eccles Library or through the inter-library loan system.

This new computer service is available to all medical researchers whether or not they are associated with the University of Utah Medical Center. There is a service charge of $10.00.

WYOMING

Dr. Nicholas to Head Colorado-Wyoming Regional Medical Program

Appointment of Dr. Thomas A. Nicholas, prominent and much-honored family doctor of Buffalo, Wyoming, as director of the Colorado-Wyoming Regional Medical Program was approved by the University of Colorado Board of Regents on March 22. Dr. Nicholas, a leading figure in medical affairs of the Rocky Mountain region, will take over direction of the RMP on July 1 or earlier and meantime will work part-time in assuming executive responsibilities for the program.

According to Dr. Robert A. Aldrich, the University's vice president for health affairs, Dr. Nicholas will bring to the position "a keen awareness, based on personal experience, of the needs of practitioners and consumers at the grass roots".

Since 1970, Dr. Nicholas has been actively engaged in the program as chairman of the Regional Advisory Group, which assists the small full-time staff in identifying needs and planning goals. The group, of which Dr. Aldrich also is a member, includes 40 health professionals, medical educators, public health officials, and representatives of the consumer public. Dr. Nicholas also has been active in two other regional RMP's. He has been assistant director since 1967 of the Mountain States RMP, organized by the Western Interstate Commission for Higher Education in Boulder to serve portions of Idaho, Montana, Nevada, and Wyoming, and since 1970 a member of the executive committee of the Intermountain RMP, based at the University of Utah Medical Center. Family doctor to the people of the Buffalo, Wyoming area for more than 20 years, Dr. Nicholas has found time to participate actively in state and local medical, health, and civic affairs.

The Colorado-Wyoming RMP, which has its headquarters in Denver, is one of 56 federally financed regional programs established since the mid-1960's to improve the quality and delivery of health services to the American people. The CWRMP was created in 1967 under auspices of the University of Colorado Medical Center to work with health professionals and institutions of the two states on regional needs and priorities.

ERRATA

Please refer to "Feeding Behavior in the Medical Sciences", which appeared in our March issue. The author wishes to make an addition and correction to the section entitled *Results and Discussion* on page 65. The first sentence should be amended to read: "In the absence of both the evidence in the literature of recorded action potentials from *Busycon* or of a known stimulus which would give rise to these, . . ." The last sentence of the first paragraph should be corrected to read: "The siphon was suspected to contain both mechanical and chemical receptors."

OBITUARIES

Colorado

Hans H. Von Fumetti, MD, a Denver physician, died March 20, 1972. Born in Walsenburg, Colorado on October 22, 1923, Doctor Von Fumetti received his MD degree from the University of Colorado in 1952. After completing an internship in Phoenix, Arizona in 1953, he practiced in Aspen, Colorado until 1955, when he returned to Denver and established a practice. In addition to belonging to the Colorado Medical Society, Doctor Von Fumetti was active on many of the committees of his component organization, the Clear Creek Valley Medical Society.

Doctor Von Fumetti is survived by his wife, Mary, and two sons and two daughters.

Alfred H. Washburn, MD, a retired Denver pediatrician and former director of the Child Research Council at the University of Colorado Medical Center, died April 2, 1972 at the age of 77. Born in Boston, Massachusetts on March 4, 1895, Doctor Washburn graduated from Amherst College in 1916 and received his MD degree from Harvard University in 1921. After completing his internship at Presbyterian Hospital, he married the former Laura A. Orbison on February 15, 1923.

Doctor Washburn headed the Child Research Council from 1930 until his retirement in 1960. Under his direction, a lifetime research project was initiated in which over 100 subjects were to be studied from infancy through adulthood to determine the influence of childhood behavior and experience on later development.

Included among the awards he received for his work were the Anderson Aldrich Award for Child Development in 1965 from the American Academy of Pediatrics and the Florence R. Sabin Award for Public Health in 1967 from the Colorado Public Health Association. Besides the Colorado Medical Society, Doctor Washburn was affiliated with the Society for Pediatric Research, the Society for Experimental Biology and Medicine, the Society for Research in Child Development, and the American Pediatrics Society, for which he served a term as president in 1954-55.

Doctor Washburn is survived by his widow, their three sons, and seven grandchildren.

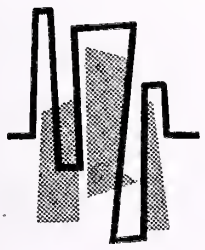
William W. Webster, MD, died in Greeley, Colorado on February 20, 1972. Doctor Webster was born in Wray, Colorado on October 17, 1903. He attended the University of Chicago and the University of Nebraska, where he was graduated with a BS degree in 1926 and an MD degree in 1928. After serving his internship in Tulsa, Oklahoma, Doctor Webster became a fellow in surgery at the Mayo Graduate School of Medicine in Rochester, Minnesota in 1929. He left there in 1932 to return to Colorado. Settling in Greeley, Doctor Webster became chief of staff of the Greeley Clinic and a staff member of the Weld County General Hospital.

Doctor Webster was a member of the American Medical Association, the Colorado Medical Society, and the Industrial Medical Association as well as the Alumni Association of the Mayo Graduate School of Medicine. In addition to his widow, he is survived by a son and a daughter.

Montana

Francis John Murphy, MD, died February 23, 1972 in Coeur d'Alene, Idaho. Doctor Murphy was born in Oldham, South Dakota on March 11, 1900. He attended the University of Alberta, after which he received his MD degree from the McGill University Faculty of Medicine, Montreal, in 1925.

After serving in the Navy during World War II, Doctor Murphy was clinical professor of anesthesiology at the University of California Hospital in San Francisco from 1947 to 1957. He moved to Billings in 1958 to engage in the practice of anesthesiology; in 1970, he retired and left Billings to live on a ranch at Spirit Lake, Idaho. Doctor Murphy was a member of the American Medical Association, the Montana Medical Association, the Yellowstone Valley Medical Society, and a charter member of the Academy of Anesthesiology.



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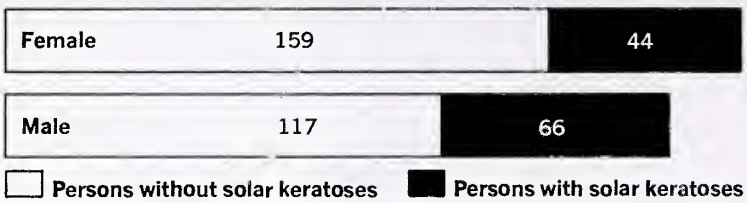
An epidemiologic study* conducted in Tipton County, Tennessee, revealed that 28.5% of white persons over 40 had solar keratoses; most had multiple lesions. Cluster sampling projected an estimated prevalence of 32.5% for white males and 19.5% for white females.

Though this is an unusually high percentage of affected persons, these lesions can occur in any white population, wherever people work or play out of doors.

Prevalence of solar keratoses in white persons over 40 in Tipton County, Tennessee



*Data on file, Hoffmann-La Roche Inc., Nutley, New Jersey.

Solar, actinic, senile keratoses

Called by many names, the typical lesion is flat or slightly elevated, brownish or reddish in color, papular, dry, adherent, rough, sharply defined; usually multiple lesions, chiefly on exposed portions of the skin.

Sequence/selectivity of response

Erythema in areas of lesions may begin after several days of therapy; height of reaction (only in affected areas)* usually occurs within two weeks, declining after discontinuation of therapy. Since this response is so predictable, lesions that do not respond should be biopsied to rule out the presence of a frank neoplasm.

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Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.

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Adverse Reactions: Nausea, headache, anorexia, vomiting, diarrhea, epigastric distress, abdominal cramping, constipation, a metallic, sharp and unpleasant taste, furry or sore tongue, glossitis and stomatitis possibly associated with a sudden overgrowth of *Monilia*, exacerbation of vaginal moniliasis, an occasional reversible moderate leukopenia, dizziness, vertigo, incoordination and ataxia, numbness or paresthesia of an extremity, fleeting joint pains, confusion, irritability, depression, insomnia, mild erythematous eruptions, "weakness," urticaria, flushing, dryness of the mouth, vagina or vulva, pruritus, dysuria, cystitis, a sense of pelvic pressure, dyspareunia, fever, polyuria, incontinence, decrease of libido, nasal congestion, proctitis, pyuria and darkened urine have occurred in patients receiving the drug. Patients receiving Flagyl may experience abdominal distress, nausea, vomiting or headache if alcoholic beverages are consumed. The taste of alcoholic beverages may also be modified. Flattening of the T wave may be seen in EKG tracings.

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June 1972

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Indications: Acute gouty arthritis, rheumatoid arthritis, rheumatoid spondylitis.

Contraindications: Children 14 years or less; senile patients; history or symptoms of G.I. inflammation or ulceration including severe, recurrent or persistent dyspepsia; history or presence of drug allergy; blood dyscrasias, renal, hepatic or cardiac dysfunction; hypertension; thyroid disease; systemic edema; stomatitis and salivary gland enlargement due to the drug; polymyalgia rheumatica and temporal arteritis; patients receiving other potent chemotherapeutic agents, or long-term anticoagulant therapy.

Warnings: Age, weight, dosage, duration of therapy, existence of concomitant diseases, and concurrent potent chemotherapy affect incidence of toxic reactions. Carefully instruct and observe the individual patient, especially the aging (forty years and over) who have increased susceptibility to the toxicity of the drug. Use lowest effective dosage. Weigh initially unpredictable benefits against potential risk of severe, even fatal, reactions. The disease condition itself is unaltered by the drug. Use with caution in first trimester of pregnancy and in nursing mothers. Drug may appear in cord blood and breast milk. Serious, even fatal, blood dyscrasias, including aplastic anemia, may occur suddenly despite regular hemograms, and may become manifest days or weeks after cessation of drug. Any significant change in total white count, relative decrease in granulocytes, appearance of immature forms, or fall in hematocrit should signal immediate cessation of therapy and complete hematologic investigation. Unexplained bleeding involving CNS, adrenals, and G.I. tract has occurred. The drug may potentiate action of insulin, sulfonylurea, and sulfonamide-type agents. Carefully observe patients taking these agents. Nontoxic and toxic goiters and myxedema have been reported (the drug reduces iodine uptake by the thyroid). Blurred vision can be a significant toxic symptom worthy of a complete ophthalmological examination. Swelling of ankles or face in patients under sixty may be prevented by reducing dosage. If edema occurs in patients over sixty, discontinue drug.

Precautions: The following should be accomplished at regular intervals: Careful detailed history for disease being treated and detection of earliest signs of adverse reactions; complete physical examination including check of patient's weight; complete weekly (especially for the aging) or an every two week blood check; pertinent laboratory studies. Caution patients about participating in activity requiring alertness and coordination, as driving a car, etc. Cases of leukemia have been reported in patients with a history of short- and long-term therapy. The majority of these patients were over forty. Remember that arthritic-type pains can be the presenting symptom of leukemia.

Adverse Reactions: This is a potent drug; its misuse can lead to serious results. Review detailed information before beginning therapy. Ulcerative esophagitis, acute and reactivated gastric and duodenal ulcer with perforation and hemorrhage, ulceration and perforation of large bowel, occult G.I. bleeding with anemia, gastritis, epigastric pain, hematemesis, dyspepsia, nausea, vomiting and diarrhea, abdominal distention, agranulocytosis, aplastic anemia, hemolytic anemia, anemia due to blood loss including occult G.I. bleeding, thrombocytopenia, pancytopenia, leukemia, leukopenia, bone marrow depression, sodium and chloride retention, water retention and edema, plasma dilution, respiratory alkalosis, metabolic acidosis, fatal and nonfatal hepatitis (cholestasis may or may not be prominent), petechiae, purpura without thrombocytopenia, toxic pruritus, erythema nodosum, erythema multiforme, Stevens-Johnson syndrome, Lyell's syndrome (toxic necrotizing epidermolysis), exfoliative dermatitis, serum sickness, hypersensitivity angiitis (polyarteritis), anaphylactic shock, urticaria, arthralgia, fever, rashes (all allergic reactions require prompt and permanent withdrawal of the drug), proteinuria, hematuria, oliguria, anuria, renal failure with azotemia, glomerulonephritis, acute tubular necrosis, nephrotic syndrome, bilateral renal cortical necrosis, renal stones, ureteral obstruction with uric acid crystals due to uricosuric action of drug, impaired renal function, cardiac decompensation, hypertension, pericarditis, diffuse interstitial myocarditis with muscle necrosis, perivascular granulomata, aggravation of temporal arteritis in patients with polymyalgia rheumatica, optic neuritis, blurred vision, retinal hemorrhage, toxic amblyopia, retinal detachment, hearing loss, hyperglycemia, thyroid hyperplasia, toxic goiter, association of hyperthyroidism and hypothyroidism (causal relationship not established), agitation, confusional states, lethargy; CNS reactions associated with overdosage, including convulsions, euphoria, psychosis, depression, headaches, hallucinations, giddiness, vertigo, coma, hyperventilation, insomnia; ulcerative stomatitis, salivary gland enlargement.
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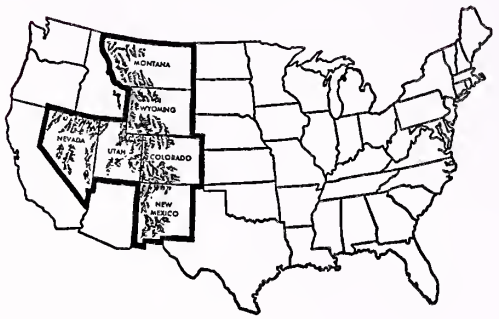

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To the Editor:

With reference to the Letter to the Editor published in your issue of April 1972, I will convey a few personnal comments.

Dr. Freeman Fowler ought to brush up on his religious knowledge, but his outcry against such turpitude as "abortion on demand" deserves my praise and admiration. Immaculate conception means "born without original sin", and the belly button itself is not an expression of "sin", i.e., intercourse. On the contrary, it is one of the miracles of creation.

Our Lord was born, according to the Scriptures, without the help of a male partner, from the Virgin Mary. Because He Himself was life and did not need any assistance, He wanted to take the same time to be formed in the flesh as any other human being to prove that He was true man, the Son of God. The wonders of creation (just look around) are the reason for man to better understand Him and see in these His might and His love for us.

The belly button is here to stay, once again to prove the fallibility of man and that man can destroy instead of create, much to his agonizing pain and immense desperation.

Just before He died on the cross, our Lord looked down at those men, raised His head to Heaven and said, "Father, forgive them because they know not what they do." So, why do not the physicians take a stand and oppose such turpitude. Never mind the writing in the papers, never mind the legislature. Just say to the patient, "I won't do it!"

Benedetto Macaluso, MD
Las Vegas, New Mexico

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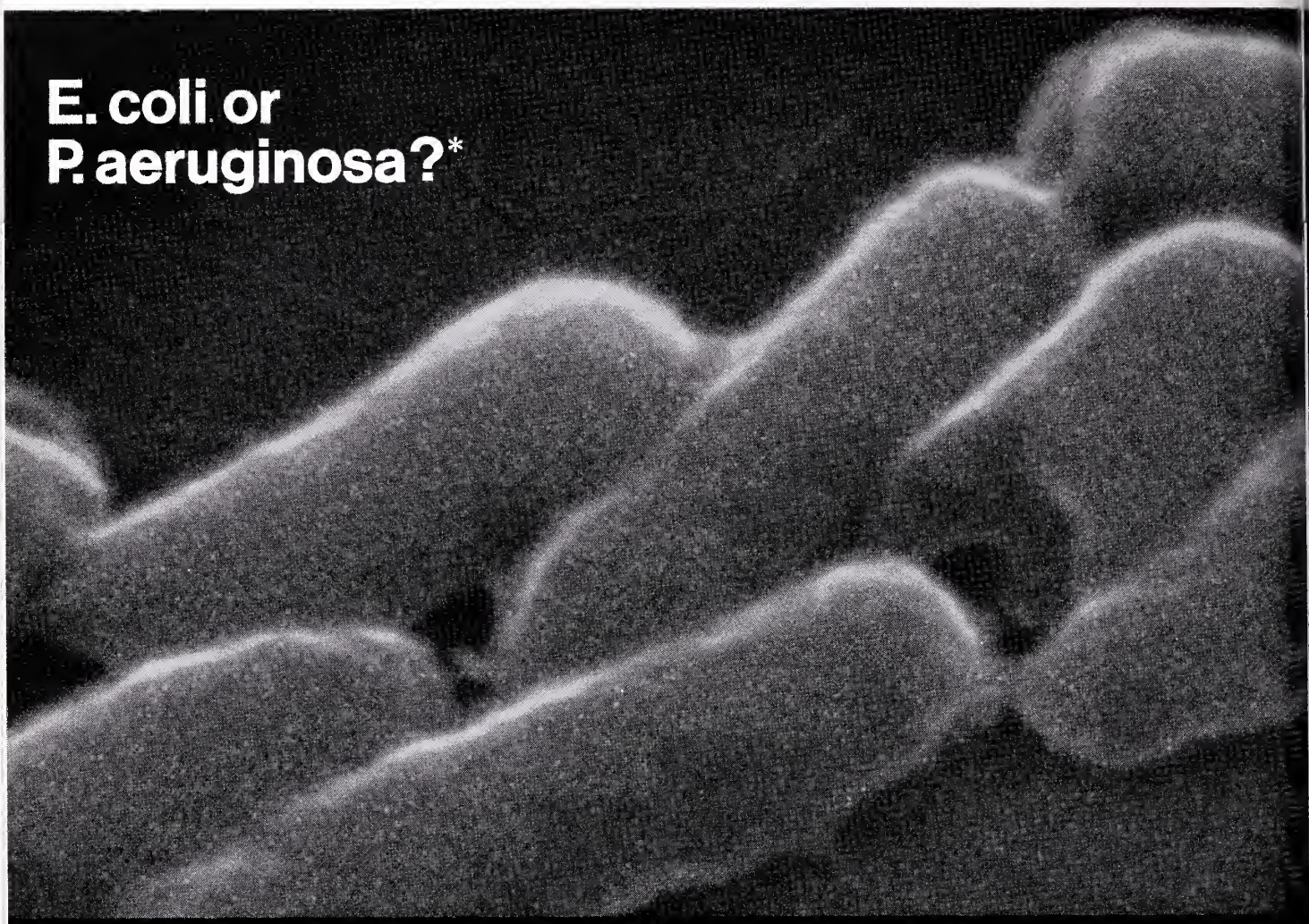

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*E. coli are revealed by the rounded ends of the bacteria in this new scanning electron micrograph. *P. aeruginosa* have tapered ends. Neither distinction can be seen under standard microscopy. Photomicrography: Courtesy Harry S. Truman Laboratory, Kansas City, Mo.

140/90 is normal blood pressure...or is it?

An extensive study based on nearly 4 million life insurance policies suggests that a blood pressure reading of 140/90 requires close medical supervision.

Study Findings. Twelve years ago the Society of Actuaries reported on an extensive study based on the lives and deaths represented by almost 4 million life insurance policies. From this vast survey—"The Build and Blood Pressure Study"[1]—insurance experts concluded that:

- Blood pressure above 140/90 is accompanied by increased morbidity and requires close medical attention.
- Even small increments in either systolic or diastolic blood pressure progressively and steeply shorten life expectancy.

Other Studies. Studies conducted with large numbers of patients since that time have echoed the above findings. Two studies published in 1970—the VA Cooperative Study Group on "Effects of Treatment on Morbidity in Hypertension"[2] and the "Framingham Study"[3]—suggest that treatment of even mild hypertension may, over time, offer significant benefits to the patient.

Another Point of View. Although a growing body of studies suggests that treatment of mild hypertension is warranted, medical opinion is not unanimous. Some clinicians recommend that drug treatment for mild hypertension be reserved for patients with additional risk factors such as smoking, high cholesterol levels, heart or kidney involvement, or a family history of vascular disease. Dr. Walter M. Kirkendall stated this position in his recent paper "What's With Hypertension These Days?"[4] Discussing the management of hypertension in patients with a sustained diastolic pressure up to 100 mm Hg, he said: "Generally, I do not recommend antihypertensive therapy unless patient's blood pressure approaches the upper limit for the group and a number of adverse factors exist, such as male sex, family history of vascular disease, youth, evidence of heart or kidney involvement."

Drug Therapy for Hypertension. Although opinion varies on when to start drug therapy for mild hypertension, many physicians agree that treatment should start with a thiazide diuretic such as HydroDIURIL. For the adult patient, the usual starting dosage is 50 mg b.i.d. Dosage adjustments are recommended as the patient responds to treatment. The patient whose therapy begins with HydroDIURIL frequently can continue to benefit from it, because HydroDIURIL usually maintains its antihypertensive effect even when therapy is prolonged.

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25- and 50-mg tablets

HydroDIURIL®

(Hydrochlorothiazide|MSD)

Therapy to Start With

For a brief summary of prescribing information, please see next page.

1. Society of Actuaries, *The Build and Blood Pressure Study*, 1959.
2. Veterans Administration Cooperative Study Group on Antihypertensive Agents, "Effects of Treatment on Morbidity in Hypertension," JAMA *213*:1143-1152, Aug. 17, 1970.
3. Kannel, William B., *et al.*: "Epidemiologic Assessment of the Role of Blood Pressure in Stroke—The Framingham Study," JAMA *214*:301-310, Oct. 12, 1970.
4. Kirkendall, Walter M.: "What's With Hypertension These Days?" Consultant, Jan. 1971.

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Therapy to Start With

Drug Therapy for Hypertension. Although opinion varies on when to start drug therapy for mild hypertension, many physicians agree that treatment should start with a thiazide diuretic such as HydroDIURIL. For the adult patient, the usual starting dosage is 50 mg b.i.d. Dosage adjustments are recommended as the patient responds to treatment. The patient whose therapy begins with HydroDIURIL frequently can continue to benefit from it, because HydroDIURIL usually maintains its antihypertensive effect even when therapy is prolonged.

CONTRAINDICATIONS: Anuria; increasing azotemia and oliguria during treatment of severe progressive renal disease. Known sensitivity to this compound. Nursing mothers; if use of drug is deemed essential, patient should stop nursing.

WARNINGS: May precipitate or increase azotemia. Use special caution in impaired renal function to avoid cumulative or toxic effects. Minor alterations of fluid and electrolyte balance may precipitate coma in hepatic cirrhosis.

When used with other antihypertensive drugs, careful observation for changes in blood pressure must be made, especially during initial therapy. Dosage of other antihypertensive agents, especially ganglion blockers, must be reduced by at least 50% because HydroDIURIL potentiates their action.

Stenosis and ulceration of the small bowel causing obstruction, hemorrhage, and perforation have been reported with the use of enteric-coated potassium tablets, either alone or with nonenteric-coated thiazides. Surgery was frequently required, and deaths have occurred. Such formulations should be used only when indicated and when dietary supplementation is impractical. Discontinue immediately if abdominal pain, distention, nausea, vomiting, or gastrointestinal bleeding occurs.

Thiazides cross placenta and appear in cord blood. In women of childbearing age, potential benefits must be weighed against possible hazards to fetus, such as fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult.

The possibility of sensitivity reactions should be considered in patients with a history of allergy or bronchial asthma. The possibility of exacerbation or activation of systemic lupus erythematosus has been reported for sulfonamide derivatives, including thiazides.

PRECAUTIONS: Check for signs of fluid and electrolyte imbalance, particularly if vomiting is excessive or patient is receiving parenteral fluids. Warning signs, irrespective of cause, are dryness of mouth, thirst, weakness, lethargy, drowsiness, restlessness, muscle pains or cramps, muscular fatigue, hypotension, oliguria, tachycardia, and gastrointestinal disturbances. Hypokalemia may develop (especially with brisk diuresis) in severe cirrhosis; with concomitant steroid or ACTH therapy; or with inadequate electrolyte intake. Digitalis therapy may exaggerate metabolic effects of hypokalemia, especially with reference to myocardial activity. Hypokalemia may be avoided or treated by use of potassium chloride or giving foods with a high potassium content. Similarly, any chloride deficit may be corrected by use of ammonium chloride (except in patients with hepatic disease) and largely prevented by a near normal salt intake. Hypochloremic alkalosis occurs infrequently and is rarely severe. In severely edematous patients with congestive failure or renal disease, a low salt syndrome may occur if dietary salt is unduly restricted, especially during hot weather.

Thiazides may increase responsiveness to tubocurarine. The antihypertensive effect of the drug may be enhanced in the postsympathectomy patient. Arterial responsiveness to norepinephrine is decreased, necessitating care in surgical patients. Discontinue drug 48 hours before elective surgery. Orthostatic hypotension may occur and may be potentiated by alcohol, barbiturates, or narcotics.

Pathological changes in the parathyroid glands with hypercalcemia and hypophosphatemia have been seen in a few patients on prolonged thiazide therapy. The effect of discontinuing thiazide therapy on serum calcium and phosphorus levels may be helpful in assessing the need for parathyroid surgery in such patients. Parathyroidectomy has elicited subjective clinical improvement in most patients, but has no effect on hypertension. Thiazide therapy may be resumed after surgery.

Use cautiously in hyperuricemic or gouty patients; gout may be precipitated. May affect insulin requirements in diabetics; may induce hyperglycemia and glycosuria in latent diabetics.

ADVERSE REACTIONS: Rare reactions include thrombocytopenia, leukopenia, agranulocytosis, aplastic anemia, cholestasis, and pericholangiolitic hepatitis. Nausea, vomiting, diarrhea, dizziness, vertigo, paresthesias, transient blurred vision, sialadenitis, purpura, rash, urticaria, photosensitivity, or other hypersensitivity reactions may occur. Cutaneous vasculitis precipitated by thiazide diuretics has been reported in elderly patients on repeated and continuing exposure to several drugs. Scattered reports have linked thiazides to pancreatitis, xanthopsia, neonatal thrombocytopenia, and neonatal jaundice. When adverse reactions are moderate or severe, the dosage of thiazides should be reduced or therapy withdrawn.

For more detailed information, consult your MSD Representative or see the Direction Circular. Merck Sharp & Dohme, Division of Merck & Co., Inc., West Point, Pa. 19486

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1. Who may submit articles. The Rocky Mountain Medical Journal ordinarily accepts only articles prepared by members of the state societies we serve and by guest speakers at their official meetings.

2. Method of preparation. All material for publication must be typewritten, double spaced, with liberal margins, using only one side of the paper, pages consecutively numbered, and preferably on standard 8½ x 11 white bond paper. Carbon copies are *not* acceptable.

Title (preferably short) and author's name, city and state must appear at the top of the first page. Second and subsequent pages should be identified with consecutive page numbers and author's surname. If physician authors possess more than one degree, the MD only is used. Lesser degrees of non-MD authors or co-authors may be used.

Please include beneath the title or at the top of the first page a brief paragraph stating what the article is designed to show and, therefore, why it should be read. This introductory feature is, in editorial parlance, called the "blurb"; it is printed in bold type.

3. Where to submit material. All copy must be sent to the editor for the state in which the material originates. Editors for each state, with their mailing addresses, are listed monthly on the Table of Contents page of the Journal.

4. Acceptance or rejection. The state editor will (1) tentatively accept the article, (2) return it to the author with suggestions for revision, or (3) reject it. He will edit and forward approved copy to the publication office in Denver for final editing and scheduling.

5. Order of publication. Ordinarily, articles will be published in the order received. Those whose value is seasonal, whose value would be lost if publication is delayed, or which reflect priority of original research, are given special consideration. State presidential addresses, programs, state society minutes, and timely organization announcements are given priority.

6. Length of articles. Scientific papers should be "boiled down" not to exceed ten pages of double-spaced typewritten standard 8½ x 11 inch sheets. Shorter papers are more acceptable to editors and readers, and earlier publication is probable. Every journal is in competition for the reader's time, and condensation is the order of the day. For this reason, and because of financial and space limitations, we request that copy be condensed to the greatest extent consistent with conveying the message.

7. Illustrations. A limited number of illustrations or "cuts," usually up to six, will ordinarily be accepted within our own publication budget if the editor believes they enhance the value of the article. Clear photos, simple diagrams or line drawings in black on white, printing rather than writing, reproduce well. Cuts should be mounted separately, and the paper or cardboard mounts should be the same size as that upon which the article is typed. Each should have its caption below: Fig. 1, Fig. 2, etc., with a short descriptive sentence. Authors will be billed our cost for excess above six cuts.

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9. Case reports. Case reports are popular with our readers. A brief introductory statement concerning the condition or disease, tells why the case is presented. The report follows with a separate heading, CASE REPORT or CASE 1, CASE 2, etc. Include only relevant, positive laboratory and other data. Names, initials, and numbers are unimportant; age, sex, and sometimes occupation are significant. Minimize dates; then make it month, date, year—as February 9, 1969; not 2/9/69. After the case presentation, review or sum it up under a heading such as Discussion, Comment, Summary or Conclusion.

10. Footnotes. Footnotes must be brief. One at the bottom of the first page should state the Society and date of presentation, and institutional origin, if any. Special titles or position of the author, acknowledgements, etc., will be added according to simplicity, editorial policy and discretion.

11. References. Reference lists rarely add to the value of an article for the majority of readers. We will make every effort to publish short reference lists, but long ones will be deleted. Incidentally, the proper heading is "References," not "Bibliography." The latter implies everything in the literature upon the subject. Make them uniform in style and brief, as: Jones, W. K.: Pyelonephritis in Infancy. JAMA 141:75. 1964.

12. Editorials. We would like to have more submitted by our State editors and the membership at large. Readers must get tired of thunder from publication headquarters in Denver; frankly, we do too! Speak out, and we'll sign your name, initials, or respect your request for anonymity, as you choose. If you don't like something we do or say, please let us in on it; we could even stand to hear about it if something happens to please you. A "Letter to the Editor" may help you get something off your mind. We're asking for it and we have a place to put it—in the Journal, that is!

13. Proofs. Galley proofs are submitted to the author, and prompt return is essential. Authors should correct typographical, grammatical, or rhetorical errors, but do not reinsert or rewrite sentences, paragraphs, tables, etc., which an editor may have deleted, condensed, or paraphrased. When an article reaches the galley-proof stage, the author may NOT re-edit his article; that is the privilege of the Journal's editors.

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"The history of science, and in particular the history of medicine...is... the history of man's reactions to the truth, the history of the gradual revelation of truth, the history of the gradual liberation of our minds from darkness and prejudice."

—George Sarton, from "The History of Medicine Versus the History of Art"

Would it be useful in clinical practice to have government predetermine drugs of choice?

Opinion

Results of a survey of physicians:

13.3%
Yes, it would be useful.

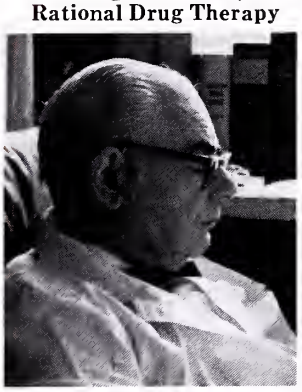
86.7%
No, it would not be useful.

Dialogue

Would it be useful in clinical practice to have government predetermine drugs of choice?

Doctor of Medicine

Walter Modell, M.D.,
Professor of Pharmacology,
Cornell University
Medical College,
Editor,
Clinical Pharmacology
& Therapeutics,
Drugs of Choice,
Rational Drug Therapy



The proposition that government should determine one or two "drugs of choice" within a given therapeutic class reflects the belief that a similarity in molecular structure insures a close similarity in pharmacologic effect. But this is by no means the rule. An obvious example would be in the field of diuretics, where a small change in chemical structure accounts for substantial differences in concomitant effects such as potassium excretion.

Any attempt to dictate the "drug of choice" would be complicated by the fact that some populations demonstrate a bimodal distribution in their reaction to drugs. If the data on drug response are mixed for the total population, one drug will appear to be as useful as the other. But if drug response is reported separately for different segments of the population, drug A will be found to be better for one group and drug B for the other.

It may, of course, be possible to determine drugs of choice in particular categories on a broad statistical basis. But there are always certain patients in whom a drug produces odd, unpredictable or idiosyncratic reactions. So, though a drug might statistically be the most useful one in a given situation, individual variations in response might make it the *incorrect* one.

The point I wish to make is that if two, three, four or more drugs in one class are of approximately equal merit, that in itself is justification for their availability. Exceptional cases do arise in which one drug would be useful to a certain segment of the population and another drug would be of no use at all. In the practice of medicine, the physician must be prepared to treat the routine as well as the unusual case.

Another objection to the determination of a drug of choice is that precise statements of *relative* efficacy are very difficult to make—much more difficult than statements of efficacy. For example, in testing drug efficacy, it is easy to determine the difference between a drug that is effective in treating a condition and one that is not at all effective. Thus, it is fairly easy to determine whether a drug is more effective than a placebo. But if you compare one drug that is effective with another drug that is also effective, and the relative differences between them are very slight, statements of relative efficacy may be very difficult to make with assurance.

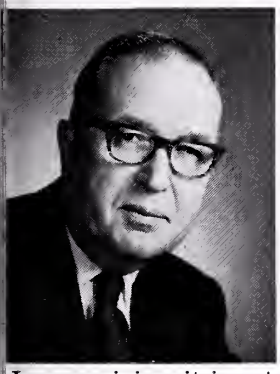
I do not mean to imply that relative efficacy statements are not useful or can never be made. With some groups of drugs (e.g., analgesics), extensive study and precise methodology have yielded useful information on relative efficacy. But in most situations, such information can be acquired only through studies encompassing three to five years of use in many more patients than are used to compare drugs with a placebo for the introduction of a drug into commerce. It is really only after practitioners use a drug extensively that relative safety and efficacy in practice can really be determined.

The Bureau of Drugs has suggested the package insert as a possible means of communicating information on relative efficacy of drugs to the physician. I find this objectionable, since I do not believe the physician should have to rely on the source for final scientific truth. There is also a practical objection: Since few physicians actually dispense drugs, they seldom see the package insert. In any event, I would maintain that the physician should know what drug he wants and why without depending on the government or the manufacturer to tell him.

Undoubtedly, physicians are swamped by excessive numbers of drugs in some therapeutic categories. And I am well aware that many drugs within such categories could be eliminated without any loss, or perhaps even some profit, to the practice of medicine. But, in my opinion, neither the FDA nor any other single group has the expertise and the wisdom necessary to determine the one "drug of choice" in all areas of medical practice.

Maker of Medicine

enneth G. Kohlstaedt, M.D.,
Vice President,
Medical Research,
Eli Lilly and Company



In my opinion, it is not ıe function of any governent or private regulatory ency to designate a "drug choice." This determinaon should be made by the ysician after he has reived full information on ıe properties of a drug, d then it will be based on is experience with this rug and his knowledge of ıe individual patient who seeking treatment.

If an evaluation of comarative efficacy were to be ıade, particularly by govnment, at the time a new rug is being approved for ıarketing, it would be a reat disservice to medine and thus to the patient the consumer. For examle, when a new therapeuc agent is introduced, on ıe basis of limited knowlge, it may be considered be more potent, more ffective, or safer than roducts already on the ıarket. Conceivably, at his time the new drug ould be labeled "the drug f choice." But as addional clinical experience is ccumulated, new evidence ıay become available. ater, it may be apparent that the established products should not be so easily dismissed.

Variation in patient response to drugs constitutes one of the major obstacles to the determination of "drugs of choice." We are just beginning to open the door on pharmacogenetics, but it is evident that genetic differences cause wide variations in the way drugs are absorbed, metabolized, etc. This fact alone is sufficient to make unrealistic the idea that there is one drug in each class to be used for every human being.

The problem of determining relative drug efficacy is an extremely complicated one. Comparison with other drugs of the same class should not be a prerequisite for marketing a new substance. In some therapeutic areas, it may be difficult to make accurate comparisons. For example, in the treatment of infections it is not possible to conduct crossover studies. Recovery may be influenced by factors which cannot be controlled or measured, i.e., natural host resistance and virulence of infective agents. A drug's acceptability must often be judged on the basis of its own performance, and this may be limited to experience in a relatively small patient population. If the introduction of a new drug must await the adequate establishment of relative efficacy, the duration of clinical trial and extent of studies would be greatly prolonged, particularly for rare or unusual conditions. The availability of a new drug would be delayed. Many patients might suffer needlessly and lives might be lost.

Relative efficacy can best be established by experience in a general patient population through regular channels of clinical practice. The physician considers the patient as a whole, which means the patient often has multiple problems and drugs must be selected with this in mind. Hence, a "drug of choice" in an uncomplicated case may not be the best drug for a patient with associated problems. Publication of well-controlled studies in medical journals may provide comparative evidence; discussions at medical meetings, presentations at postgraduate courses, and the new audiovisual technology may bring evidence to physicians on comparative therapy. In a free medical marketplace, a drug that does not measure up will fall into disuse. For example, broad clinical experience has established vitamin B_{12} as the "drug of choice" for the treatment of primary pernicious anemia. No amount of advertising or promotional effort by the manufacturer could increase the use of liver extract for this anemia. However, a physician may wish to employ parenteral liver preparations for a special purpose.

In the field of surgery, peer review in the hospital has brought significant improvement in the use of new techniques and procedures. Something of this nature would be useful in the area of drug therapy. However, it should be developed by the medical profession itself and would necessitate, for its proper function, an improvement in the dissemination of reliable data on clinical pharmacology of drugs under consideration.

Ideally, information on the relative efficacy of drugs should be gathered and assessed by the physicians who actually administer the specific agents to a specific patient population. To do this, they will need even more information on the drugs they use — information that the pharmaceutical manufacturers must begin to provide if government regulation of *"drugs of choice"* is to be avoided.

Opinion & Dialogue

What is your opinion, doctor?
Send us your comments on the above issue.

P·M·A

The Pharmaceutical Manufacturers Association
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What's on your patient's face...

may be more important than his chief complaint

he lesions on his face may e solar/actinic – so-called enile" keratoses...and ey may be premalignant.

olar, actinic or senile keratoses

ese lesions may be called by several names, but they ually can be identified by the following character-ics: the typical lesion is flat or slightly elevated, of a wnish or reddish color, papular, dry, rough, adherent, d sharply defined. They commonly occur as multiple ions, chiefly on the exposed portions of the skin.

tient P.T. seen on 3/29/67 shows typical lesions of derately severe keratoses. Note residual scarring on dge of nose from previous cryosurgical and electro-rgical procedures.*

equence of therapy/ electivity of response

ter several days of therapy with Efudex® (fluorouracil), ythema may begin to appear in the area of the lesions; e reaction usually reaches its height of unsightliness d discomfort within two weeks, declining after dis-ntinuation of therapy. This reaction occurs in affected eas. Since the response is so predictable, lesions that not respond should be biopsied.

cceptable results

eatment with Efudex provides highly favorable cos-etic results. Incidence of scarring is low. This is rticularly important with multiple facial lesions. udex should be applied with care near the eyes, nose d mouth.

atient P.T. seen on 6/12/67, seven weeks after discon-nuation of 5%-FU cream. Reaction has subsided. esidual scarring not seen except for that due to prior rgery. Inflammation has cleared and face is clear of eratotic lesions.*

ata on file, Hoffmann-La Roche Inc., Nutley, N.J.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Multiple actinic or solar keratoses.

Contraindications: Patients with known hypersensitivity to any of its components.

Warnings: If occlusive dressing used, may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.

Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local – pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported – insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.

Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with non-metal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.

How Supplied: Solution, 10-ml drop dispensers – containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)aminomethane, hydroxypropyl cellulose, parabens (methyl and propyl) and disodium edetate.

Cream, 25-Gm tubes – containing 5% fluorouracil in a vanishing cream base consisting of white petrolatum, stearyl alcohol, propylene glycol, polysorbate 60 and parabens (methyl and propyl).

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A NEW AND HUMAN LOOK AT CANCER

Friday, July 21

Morning Session

8:00 a.m.—REGISTRATION

9:00 a.m.—WELCOME

J. Robert Spencer, MD
President, Colorado Division of American Cancer Society
Chairman, Cancer Committee, Colorado Medical Society

Arthur G. James, MD
President-elect, American Cancer Society

Kenneth L. Platt, MD
President, Colorado Medical Society

Max H. Parrott, MD
Chairman, Board of Trustees, American Medical Association

9:30 a.m.—PRESENTATION OF SCIENTIFIC PAPERS Ballroom

Presiding: William R. Nelson, MD

The Changing Patterns of Uterine Cancer

James W. Reagan, MD
Case Western Reserve University, Cleveland, Ohio

10:10 a.m.—COFFEE BREAK Promenade

10:25 a.m.—**Special Problems in the Management Of Cancer**

Felix N. Rutledge, MD
M. D. Anderson Hospital, Houston, Texas

11:05 a.m.—**Regional Chemotherapy in Cancer**

John S. Stehlin, MD
Houston, Texas

12:00 noon—LUNCHEON Prospector Suite

Presiding: Kenneth C. Sawyer, MD

Our Common Cause

Speaker: Max H. Parrott, MD
Chairman, Board of Trustees, American Medical Association

Afternoon Session

2:00 p.m.—**Psychosocial Aspects of the Cancer Patient in Treatment: A Special Emphasis on the Patient with Incurable Cancer**

Melvin J. Krant, MD
Lemuel Shattuck Hospital, Boston, Massachusetts

2:45 p.m.—SYMPOSIUM: **Human Values and Continuing Care of the Patient with Advanced Cancer**

Moderator:
CHAPLAIN STUART PLUMMER
Presbyterian Medical Center, Denver, Colorado

Participants: MELVIN J. KRANT, MD
JAMES W. REAGAN, MD
FELIX RUTLEDGE, MD
JAMES STEHLIN, MD

3:15 p.m.—COFFEE BREAK Promenade

3:30 p.m.—Symposium continued

Saturday, July 22

Morning Session

7:30 a.m.—BREAKFAST Central City Room
Presiding: J. ROBERT SPENCER, MD
American Cancer Society—A Challenge

Speaker: ARTHUR G. JAMES, MD
President-elect, American Cancer Society

9:30 a.m.—SYMPOSIUM: **Information, Please**

Moderator: ALEXIS E. LUBCHENCO, MD
Participants: All members of the guest faculty.

12:30 p.m.—ADJOURNMENT

Conference Speakers

Max H. Parrott, MD
Chairman,
Board of Trustees, AMA

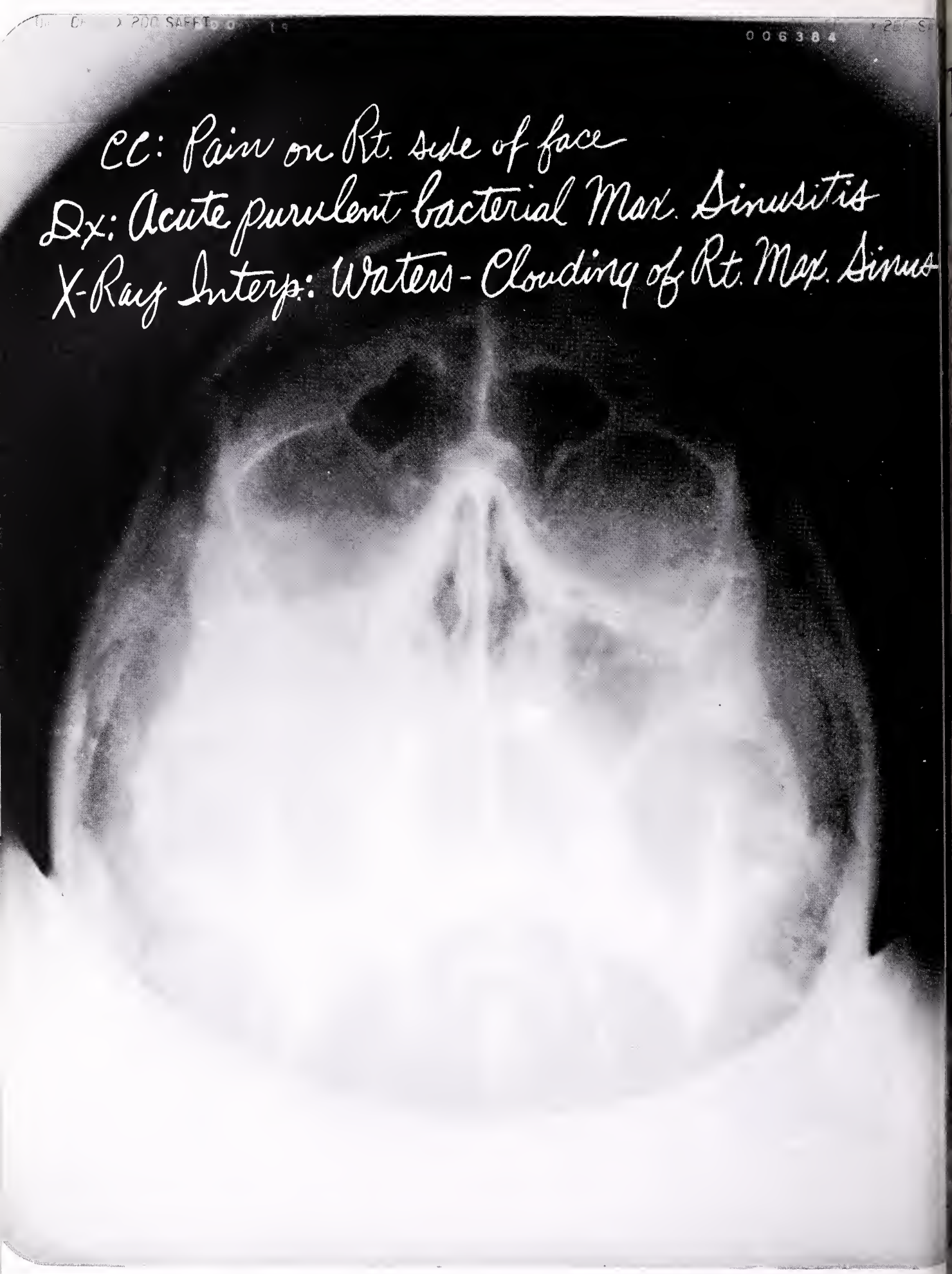
James W. Reagan, MD
Case Western Reserve University, Cleveland, Ohio

John S. Stehlin, MD
Houston, Texas

Melvin J. Krant, MD
Lemuel Shattuck Hospital
Boston, Massachusetts

Arthur G. James, MD
President-elect, American Cancer Society

Felix N. Rutledge, MD
M. D. Anderson Hospital
Houston, Texas



X-ray provided by Manhattan Eye, Ear and Throat Hospital

There are many frustrations in treating acute sinusitis. Cleocin manages most of the bacterial ones.

Inadequate drainage, chronic rhinitis, allergy, exposure to temperature extremes, and other factors can delay recovery from acute sinusitis.

It's helpful to have an antibiotic like Cleocin HCl (clindamycin HCl hydrate, Upjohn) that can take care of most of the gram-positive bacterial problems related to the disease.

As one study* of 52 outpatients showed, acute maxillary sinusitis was associated with staphylococci in 50% of the group, with pneumococci in 25%, and with streptococci and various other organisms (chiefly gram-negative) in the remainder. Significantly, one-half of these staphylococcal infections were resistant to both penicillin and tetracycline (all were sensitive to erythromycin and chloramphenicol). Although not a part of this study, many other clinical and bacteriologic reports[1] have shown that such gram-positive bacteria, which most often are associated with acute sinusitis, are usually susceptible to Cleocin.

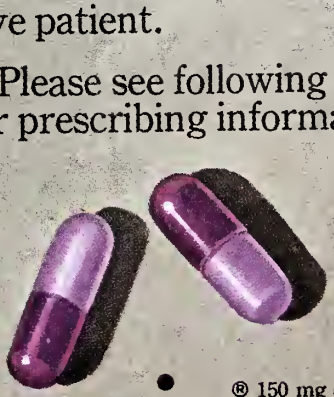
Can be taken before, with, or after meals

The total absorption of Cleocin is virtually unaffected by the presence of food in the GI tract.[1] Cleocin thus can be administered as prescribed without interfering with the patient's mealtimes.

Useful in patients hypersensitive to penicillin

Cleocin's chemical structure bears no relationship to penicillin or the cephalosporins. Cleocin therefore may be especially useful in patients with acute sinusitis who report a history of hypersensitivity to these antibiotics. Although hypersensitivity reactions have been uncommon with Cleocin, it should be used cautiously in atopic individuals. Cleocin is not recommended in the lincomycin-sensitive patient.

Please see following page for further prescribing information.



Cleocin® HCl 150 mg capsules

clindamycin HCl hydrate, Upjohn

ynolds, R. C., et al.: Bull. Johns Hopkins Hosp. 114:269, 1964
)ata on file, Medical Research Department, The Upjohn Company

©1971 The Upjohn Company

Side effects: In studies of 1,416 patients involving 92 clinical investigators, side effects were reported in 8.2%.[1] Diarrhea or loose stools were noted in 3% of these cases (one patient with bloody stools). In a few instances, diarrhea lasted several days. A slightly higher incidence of diarrhea or loose stools has been reported by some investigators in subsequent studies.

Toxicity: No irreversible hematologic, renal, dermatologic, or neurologic abnormalities have been reported.[1] Transient leukopenia and eosinophilia have been observed Elevations of alkaline phosphatase and serum transaminases were observed in a few instances As with other antibiotics, periodic liver function tests and blood counts should be performed during prolonged therapy

In acute sinusitis and other upper respiratory infections due to susceptible staphylococci, streptococci, and pneumococci

Cleocin® HCl

clindamycin HCl hydrate, Upjohn

Each preparation contains:	Clindamycin HCl hydrate equivalent to clindamycin base
150 mg Capsules	150 mg
75 mg Capsules	75 mg

Cleocin (clindamycin, Upjohn) is a new semisynthetic antibiotic produced from the parent compound lincomycin and provides more *in vitro* potency, better orol absorption ond fewer gastrointestinal side effects thon the parent compound.

Cleocin HCl (clindamycin HCl hydrate) is indicated in infections of the upper and lower respiratory troct, skin and soft tissue, and, adjunctively, dentol infections caused by gram-positive organisms which ore susceptible to its action, particularly streptococci, pneumococci and staphylococci. As with all ontibiotics, *in vitro* susceptibility studies should be performed.

CONTRAINDICATIONS: Potients previously found to be hypersensitive to this compound or to lincomycin.

WARNINGS: Sofety for use in pregnoncy not established. Not indicated in the newborn (infants below 30 doys of age).

PRECAUTIONS: Prescribe with coution in otopic individuals. Perform periodic liver function tests and blood counts during prolonged therapy. The serum half-life in patients with markedly reduced renal function is approximotely twice that in normol patients; hemodialysis ond peritoneal dialysis do not effectively remove Cleocin from the blood. Therefore, with severe renal insufficiency, determine serum levels of clindamycin periodically and decrease the dose appropriotely. Should overgrowth of nonsusceptible organisms—particulorly yeosts—occur, toke appropriate clinicolly indicoted meosures.

ADVERSE REACTIONS: Generolly well tolerated in clinicol efficocy studies. Side effects reported in 8.2% of 1,416 patients. Of the total, 6.9% reported gostrointestinal side effects and 1.3% reported other side effects. Diorrhea or loose stools were reported in 3%. *Gastrointestinol:* Symptoms included abdominal pain, nausea, vomiting and diorrhea or loose stools. In o few instonces, diorrhea lasted for several days; one case of bloody stools was reported. *Hematopoietic:* Transient neutropenia (leukopenia) and eosinophilio hove been reported; relationship to theropy is unknown. No irreversible hematologic toxicity hos been reported. *Skin and Mucous Membrones:* Skin rosh and urticaria have been reported infrequently. *Hypersensitivity Reactions:* A few cases of hypersensitivity reaction have been reported. If hypersensitivity occurs, discontinue drug ond have available the usual agents (epinephrine, corticosteroids, antihistamines) for emergency treatment. *Liver:* Although no direct relationship of Cleocin HCl (clindamycin HCl hydrate) to liver dysfunction hos been noted and significance of such chonge is unknown, tronsient obnormolities in liver function tests (elevations of olkoline phosphotase ond serum tronsominases) have been observed in o few instonces. Also, obnormal liver function test values ot the beginning of theropy hove returned to normol during therapy.

DOSAGE AND ADMINISTRATION: *Adults:* Mild to moderately severe infections—150 to 300 mg every 6 hours. Severe infections—300 to 450 mg every 6 hours.

Children: Mild to moderately severe infections—8 to 16 mg/kg/doy (4 to 8 mg/lb/doy) divided into three or four equal doses. Severe infections—16 to 20 mg/kg/doy (8 to 10 mg/lb/doy) divided into three or four equol doses.

Note: With β-hemolytic streptococcal infections, treatment should continue for at leost 10 days to diminish the likelihood of subsequent rheumatic fever or glomerulonephritis.

SUPPLIED: *150 mg Capsules*—Bottles of 16's ond 100's. *75 mg Capsules*—Bottles of 16's ond 100's. *Sensitivity Disks*—2 μg. *Sensitivity Powder*—Vials.

For additional product information, see your Upjohn representative or consult package insert. MED B-4-S (LNU-3) JA71-1565

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Empirin Compound with Codeine No. 3 contains codeine phosphate (32.4 mg.) gr. ½. No. 4 contains codeine phosphate* (64.8 mg.) gr. 1. *(Warning—may be habit-forming.) Each tablet also contains: aspirin gr. 3½, phenacetin gr. 2½, caffeine gr. ½. Bottles of 100 and 1000.*

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- ☐ **belladonna alkaloids—for the hyperactive bowel**
- ☐ **simethicone—for accompanying distension and pain due to gas**
- ☐ **phenobarbital—for associated anxiety and tension**

Composition: Each chewable, fruit-flavored, scored tablet contains: 16 mg. phenobarbital (warning: may be habit-forming); 0.1 mg. hyoscyamine sulfate; 0.02 mg. atropine sulfate; 0.007 mg. scopolamine hydrobromide; 40 mg. simethicone.
Contraindications: Hypersensitivity to barbiturates or belladonna alkaloids, glaucoma, advanced renal or hepatic disease.
Precautions: Administer with caution to patients with incipient glaucoma, bladder neck obstruction or urinary bladder atony. Prolonged use of barbiturates may be habit-forming.
Side effects: Blurred vision, dry mouth, dysuria, and other atropine-like side effects may occur at high doses, but are only rarely noted at recommended dosages.
Dosage: Adults: One or two tablets three or four times daily. Dosage can be adjusted depending on diagnosis and severity of symptoms. Children 2 to 12 years: One half or one tablet three or four times daily. Tablets may be chewed or swallowed with liquids.

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(from the Greek **kinetikos,**
to move,
and the Latin **sedatus,**
to calm)

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antispasmodic/sedative/antiflatulent

Spring peeper (tree frog, *Hyla crucifer*): this small amphibian can expand its throat membrane with air until it is twice the size of its head.

Will his return to work mean the return of undue psychic tension?

When it's mandatory to keep the post-coronary patient calm, consider Valium (diazepam).

Although he's promised to take it easy back on the job, you know he's going back to the same stressful circumstances that may have contributed to his hospitalization. If he experiences excessive anxiety and tension because of overreaction to stress, your prescription for Valium can bring relief. During the period of readjustment Valium can quiet undue anxiety.

For moderate states of psychic tension, 5-mg or 2-mg Valium tablets *b.i.d.* to *q.i.d.* can usually provide reliable relief. For severe tension/anxiety states, the 10-mg tablets often produce desired results.

The most commonly reported side effects are drowsiness, ataxia and fatigue. Until individual response is determined, caution patient against driving or operating dangerous machinery.

Valium® (diazepam)

For the tense cardiac patient who must be kept calm

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

Dosage: Individualize for maximum beneficial effect. *Adults*: Tension, anxiety and psychoneurotic states, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed; adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d.; adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. *Geriatric or debilitated patients*: 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) *Children*: 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

Supplied: Valium® (diazepam) Tablets, 2 mg, 5 mg and 10 mg; bottles of 100 and 500. All strengths also available in Tel-E-Dose® packages of 1000.

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MEETINGS

Pediatric Pulmonary Center of the New Mexico Regional Medical Program
INHALATION THERAPY FOR CHILDREN AND YOUNG ADULTS
Foundation for Medical Education and Research, Albuquerque, New Mexico
June 12-16, 1972

No registration fee.
Credit: AAGP to be approved.

For further information, write: Roy F. Goddard, MD, Course Director, Pediatric Pulmonary Center of New Mexico Regional Medical Program, 5300 Gibson Boulevard, S.E., Albuquerque, New Mexico 87108.

American Academy of Orthopaedic Surgeons
POSTGRADUATE COURSE ON RHEUMATOID DISEASE OF THE WRIST AND HAND
Hilton Inn, Albuquerque, New Mexico
July 13-15, 1972

Credit (AAFP): 20 hours.

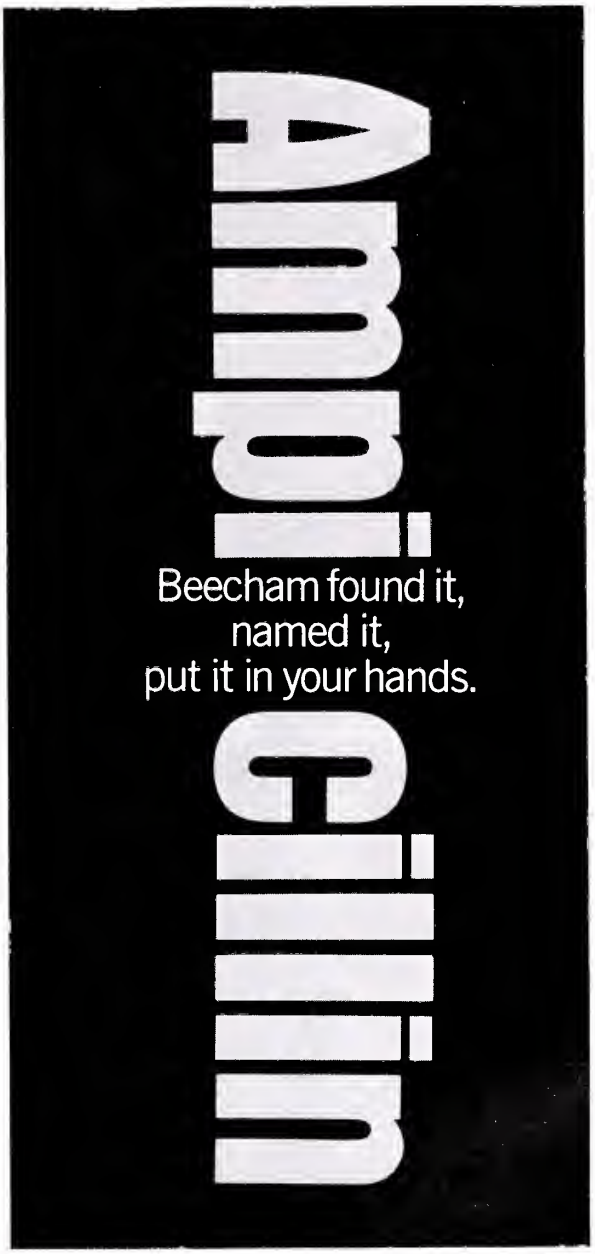
For further information, write: George E. Omer, Jr., MD, Room B-32, Health Sciences Center, University of New Mexico, Albuquerque, New Mexico 87106, or the American Academy of Orthopaedic Surgeons, 430 North Michigan Avenue, Chicago, Illinois 60611.

American Medical Association, Weizmann Institute of Science, Hebrew University-Hadassah Medical School of Jerusalem, and Tel Aviv University Medical School
MEDICAL TOUR IN ISRAEL
February 21-March 6, 1973

Registration fee: $50 for AMA members; $25 for relatives and physician guests. Registration is open only to AMA members, their relatives and physician guests. This fee will include the scientific meetings, a concert by the Israel Philharmonic Orchestra, and other special features.

Fare: Round-trip group fare from New York to Israel will be $873 to $945 depending on hotel selection and the number of stop-overs in Europe.

Requests for registration for the medical meeting in Israel should be addressed to the Department of International Medicine, American Medical Association, 535 North Dearborn Street, Chicago, Illinois 60610 and accompanied by registration fee remittances.



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American Association for Clinical Immunology and Allergy

CURRENT CONCEPTS IN ALLERGY AND CLINICAL IMMUNOLOGY
Washington Plaza Hotel, Seattle, Washington
July 16-19, 1972

For further information, write: Richard H. Jackson, MD, Program Chairman, American Association for Clinical Immunology and Allergy, P.O. Box 912, DTS, Omaha, Nebraska 68101.

Pacific Coast Fertility Society

20TH ANNUAL MEETING
Mountain Shadows Resort, Scottsdale, Arizona
October 25-29, 1972

For further information, write: Pacific Coast Fertility Society, 5410 Wilshire Boulevard, Los Angeles, California 90036.

American College of Surgeons

58TH ANNUAL CLINICAL CONGRESS
Fairmont Hotel, San Francisco, California
October 2-6, 1972

Fee: Free for fellows of the College whose dues are paid to December 1971; $90 for non-fellows; $50 for doctors in the Federal Services.

For further information, write: S. Frank Arado, American College of Surgeons, 55 East Erie Street, Chicago, Illinois 60611.

University of Illinois College of Medicine

ANNUAL OTOLARYNGOLOGIC ASSEMBLY

Eye and Ear Infirmary, University of Illinois Hospital, Chicago, Illinois
October 14-20, 1972

For further information, write: Otolaryngology, P.O. Box 6998, Chicago, Illinois 60680.

COURSE IN LARYNGOLOGY AND BRONCHOESOPHAGOLOGY

Eye and Ear Infirmary, University of Illinois Hospital, Chicago, Illinois
November 13-18, 1972

For further information, write: Department of Otolaryngology, University of Illinois at the Medical Center, P.O. Box 6998, Chicago, Illinois 60680.

CONFERENCE ON RADIOLOGY IN OTOLARYNGOLOGY AND OPHTHALMOLOGY

Eye and Ear Infirmary, University of Illinois Hospital, Chicago, Illinois
November 24-25, 1972

For further information, write: Galdino E. Valvassori, MD, Radiology Department, Abraham Lincoln School of Medicine, P.O. Box 6998, Chicago, Illinois 60680.

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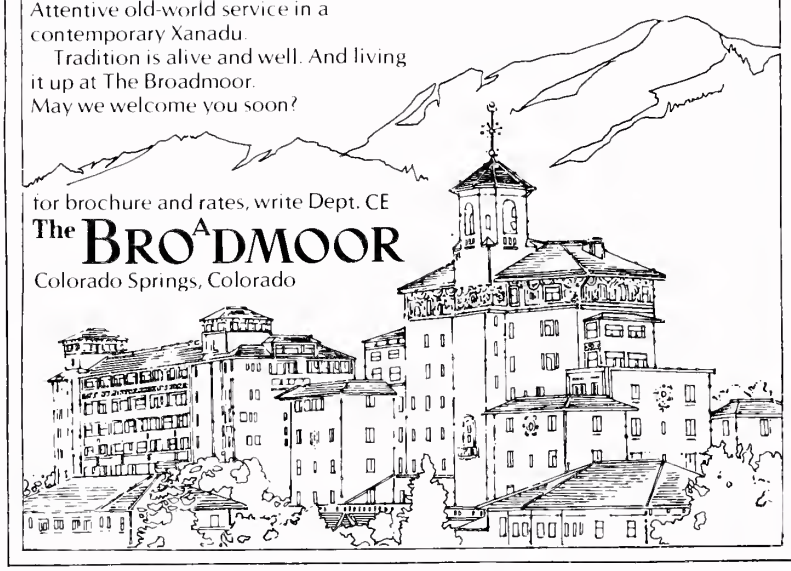

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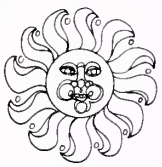

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MEDICAL SCHOOL NOTES

University of Colorado Medical Center

A two-year grant of $56,585 to search for drugs to treat hemophilia has been awarded by the John A. Hartford Foundation of New York City to the University of Colorado Medical Center. The research will be carried out by Dr. Kurt N. von Kaulla, professor in the Department of Medicine and director of the Coagulation Laboratory at the Medical Center. He will be assisted by his wife and laboratory colleague, Edith, a senior instructor in medicine.

The project is designed to pursue scientific leads, arising from previous work in Dr. von Kaulla's laboratory, that may eventually result in synthetic drugs for the treatment of hemophilia (bleeder's disease) which would be more effective than the presently used blood products.

* * * * *

Dr. Harry P. Ward, a native Coloradan and a graduate of the University of Colorado School of Medicine, has been approved as the 14th dean of the School. Dr. Ward has been a prominent member of the medical faculty since 1963 and has served as chief of the medical service at the Denver Veterans Administration Hospital since 1967. Dr. Ward was born June 6, 1933, in Pueblo, the son of Dr. and Mrs. Lester L. Ward. The senior Dr. Ward, a prominent general practitioner in Pueblo for many years, is now retired.

* * * * *

Dr. Seymour S. Cohen, professor of microbiology at the University of Colorado School of Medicine, has received two international honors. He will be awarded an honorary doctorate as the "founder of biochemical virology" by the Catholic University of Louvain, Belgium, on June 6. The Serbian Academy of Arts and Sciences in Yugoslavia has appointed him an honorary member "for scientific achievement".

* * * * *

Dr. Thomas E. Starzl, distinguished surgeon and director of the organ transplant program at the University of Colorado Medical Center and the Denver Veterans Administration Hospital, will become chairman of the Department of Surgery of the School of Medicine on July 1.

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University of New Mexico
School of Medicine

An ATS-F experimental satellite, NASA's "eye in the sky", will be launched over the U.S. in July 1972 for approximately nine months. It may allow doctors working in isolated rural areas to consult by television with specialists at the University of New Mexico School of Medicine and other medical centers. The satellite could also enable remote medical teaching for health workers in the field if special television receivers are installed around the state.

One-way receiving stations on the ground will be installed in some areas, and two-way receiving and transmitting stations will be installed in other areas. Another possibility is to "plant" an antenna in each community. A mobile receiving and transmitting unit could then hook into it periodically to present special programs. There will also be a public television channel linked to the satellite to transmit information to people in their homes. Public health education programs, such as first aid skills, could be taught in different languages via satellite to people all over the state.

The advanced communications system would allow medical schools in the region to share expertise and facilities to provide more comprehensive teaching programs at minimized costs. Medical students getting important clinical experience in rural settings could have ready contact with the academic medical center via satellite. It is hoped that as a side benefit such a link would encourage medical students to practice in rural areas where their services are badly needed. It might also be possible for isolated health personnel to transmit x-rays and electrocardiograms via satellite to major medical centers for interpretation. Another potential use for the satellite is a comprehensive medical information system to provide access to patient data banks in the Rocky Mountain area and to help consolidate records of patients who move from one location to another.

* * * * *

The Division of Dermatology of the University of New Mexico School of Medicine has been awarded a second development grant by the Dermatology Foundation. The $5,000 grant will be used to purchase additional equipment, invite guest lecturers here in dermatology, and help to develop the training and research program of the new division. The unrestricted funds come from private sources, including donations from members of the American Academy of Dermatology, drug companies, etc.

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THE WASHINGTON SCENE

A monthly news summary from the nation's Capital by the Washington Office of the AMA.

Mobile x-ray equipment should not be used for general population surveys for tuberculosis and other chest diseases, says a statement by the American College of Chest Physicians, American College of Radiology, and the Food and Drug Administration. The equipment used in many parts of the country "is not productive as a screening procedure for chest disease detection," the statement says. The joint statement supercedes a 1958 policy declaration by the U.S. Surgeon General that said mass chest x-rays should be conducted "selectively" with groups "at high risk of tuberculosis infection."

The new policy was indicated "in large part by the fact that tuberculosis is now almost nonexistent in many regions of the country," says Merlin K. DuVal, MD, HEW Undersecretary for Health and Scientific Affairs. "The use of mobile equipment, which requires relatively higher levels of x-ray exposure than fixed equipment, simply cannot be justified." Records of the number of mobile x-ray units still being used are not available. Twenty-eight states had registered one or more x-ray vans for use in 1970, but several of these have since discontinued use of the equipment. The 1970 information will be updated after July 1 of this year, the FDA's Bureau of Radiological Health said.

The new policy recommends full size x-ray film when x-ray screening of selected population groups is essential. The recommendation is intended to discourage the use of photofluorographic equipment that uses a fluoroscope screen in combination with miniature photographic film.

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THE AMA DEPARTMENT OF INVESTIGATION is one of the educational activities of the American Medical Association. The Department collects and disseminates information on quacks, nostrums, cultists, health frauds and fads, impostors, and other phases of pseudomedicine.

Department of Investigation

The Department's activities come under the AMA corporate purpose of promoting the betterment of the public health. Long before present-day "consumerism" became a fashionable cause, the Department of Investigation was working to expose the quacks, their products, their methods, and their unscientific ideas.

The Department of Investigation also staffs the AMA Committee on Quackery, a group of physicians who, in addition to their professional activities, have taken time and given a good deal of attention to one of the major problems: the cult of chiropractic. There are, of course, other cult groups who base their practices on unproven or disproven hypotheses. These include the naturopaths, naprapaths, mechanotherapists, reflexologists, and others. Chiropractic is the largest and the most politically active among these cults, being licensed under state statutes in 48 of the 50 states, which gives them an aura of respectability to which they are not entitled.

For a good many years, the AMA carried on its fight against cultism in medicine alone. More recently it has been joined, particularly in the fight against chiropractic, by the Department of Health, Education and Welfare, the AFL-CIO, the National Council of Senior Citizens, the Consumer Federation of America, the American Public Health Association, and other national groups. These organizations oppose the admission of chiropractors as providers of health care under such federal programs as Medicare and Medicaid.

Rather than prove to the scientific community the validity of their approach to ill health, which attributes to all illness minor dislocations of the spinal processes that are allegedly corrected by chiropractic manipulations called adjustments, the chiropractors use the political approach to better their economic status. They clamor for recognition before legislatures, seeking to broaden their base of practice to permit them to collect from insurance programs, including workmen's compensation, welfare programs, and to be included in insurance policies offering hospitalization and medical and surgical coverage. Their insistence upon these goals indicates their sole purpose in being is personal economic betterment.

The chiropractors and other cultists are not the sole reason for the Department of Investigation. It has long maintained files of information on cancer quackery and arthritis quackery. A good many who would fool the public with weight reduction claims, sleep machines, and "mind control" devices, continue. For many years, the Department had an interest in tuberculosis and diabetes quackery; however, interest in these categories has long since waned.

In its fight against quackery, the Department of Investigation has sponsored national congresses and conferences on quackery. Its representatives appear, upon request, before the professional and lay groups in an effort to disseminate information designed to create skepticism. Representatives of the Department appear on radio and television and, of course, reply to individual inquiries which come from the profession, the public, governmental agencies, writers, researchers, and others needing material from the columinous files maintained at the AMA headquarters in Chicago.

The Department of Investigation collaborates with such governmental agencies as the Food and Drug Administration, the Federal Trade Commission, Post Office Department; and with such private agencies as the American Cancer Society, The Arthritis

Foundation, National Health Council, Council of Better Business Bureaus, American Pharmaceutical Association, and others.

The files of the Department are recognized by knowledgeable persons in the field as the most extensive in the world. The files enable the staff of the Department to answer many inquiries from hospitals, medical societies, licensing boards and, particularly, the public. Health educators at all levels are furnished materials and information for use in instructing students.

It was Voltaire who observed that the quack was born when the first knave met the first fool. The AMA Department of Investigation's campaign to educate is designed to make it a good deal more difficult for the knave to ply his trade.

Kenneth C. Sawyer, MD
Board of Trustees
American Medical Association

Better Office X-rays

WE CALL YOUR ATTENTION TO "Diagnostic X-ray and Human Pollution" by Charles D. Magill, MD, on page 42 of this issue of the *Rocky Mountain Medical Journal*. The public is becoming increasingly aware of radiation hazard, and medical diagnostic use of x-ray is more and more suspect.

The author suggests ways by which every physician can reduce the exposure of his patients to x-ray. He also authoritatively describes improvements in technic of radiologic examination by the physician using x-ray which increase safety for the patient. The table entitled "Remedy for Poor X-ray Contrast" may be removed from the *Journal* and attached to the control panel in the radiologic examination room of the physician.

In addition, the author points out the hazards to the public of x-ray examination by the chiropractor. These criticisms are particularly appropriate in the context of Dr. Sawyer's editorial on the previous page.

Bra-less

THIS MORNING AN attractive young woman with a thin close-fitting blouse passed me in the hall. It did not require the eye of a physician to tell that her breasts were not supported with a brassiere. This afternoon a patient asked my opinion of allowing her daughter to wear bra-less clothing. There are few activities in modern America that do not have medical connotations.

The propriety, morality, or esthetic aspect of the practice are not our issue, but there are medical considerations. The breast tissue is supported by fibrous structures, thinly interlacing from the skin through the mammary tissue and attached to the pectoral fascia — Cooper's Suspensory Ligaments. These tissues are stretched by gravity and time, and once lengthened their integrity can never be restored. These supporting bands become stretched more readily in some women than in others, and the larger the breast, whether by endowment, pregnancy, or lactation, the greater the propensity for lengthening of the ligaments and subsequent sagging of the breast. Observation of native women of cultures where there is little clothing and support of the chest and trunk readily affirms this contention. Regular support of the breasts reduces the stretching of the ligaments and the resulting ptosis of the breasts.

Large breasts are not a danger to health except perhaps by increasing the difficulty of detecting an early focus of cancer. Pendulous breasts are not a hazard to health except iatrogenically by ill-advised or improperly performed surgical correction. Although lactation, by increasing breast size, predisposes to ptosis of the breasts, there is good evidence that it protects against cancer, particularly when frequent or prolonged. As noted in a recent question and answer discussion in the JAMA*, there is no reason for the AMA to issue any health warnings to those who prefer to go bra-less. *It is* proper for the physician to point out the anatomical consequences.

*JAMA, Jan. 31, 1972, Vol. 219, No. 5.

Clinical hypercoagulability and oral contraceptives*

Laboratory detection

E. von Kaulla, K. N. von Kaulla, MD, and W. Droegemueller, MD, Denver, Colorado

This paper is a discussion of laboratory assessment of the propensity for intravascular clotting with particular emphasis on the antithrombin III test and its relation to oral contraceptives.

THE DETECTION OF A tendency to intravascular clotting, primarily in the sense of thromboembolism, has been attempted in the past using various individual coagulation tests. Recently, renewed interest has been focused on these attempts because of the thromboembolic accidents occurring in association with oral contraceptive drugs and reports that a particular coagulation test is the "one" definitive test for predicting thrombosis tendency. In our laboratory, the requests for assessing patients for hypercoagulability have risen from one per cent 15 years ago to approximately 70 per cent of all currently requested coagulation analyses.

Tests for hypercoagulability

In our opinion it is naive to consider a single test for the evaluation of hypercoagulability of the blood. The triggering events and resulting alterations of the clotting process which may predispose to intravascular clotting vary widely. *There is an equilibrium between clotting-promoting and clotting-inhibiting factors.* The determination of individual coagulation factors is of limited value in testing for hypercoagulability. The results obtained are similar to a quotation cited out of context and the facts misinterpreted. The "context" in regard to blood coagulation is a delicate homeostatic equilibrium between clotting-promoting factors (platelets, many "numbered" factors, such as factor VIII etc., and pathological procoagulants) and endogenous clotting-inhibiting factors (non-wettable surfaces, antithrombins, and other endogenous clotting inhibitors, fibrinolytic enzymes). The activity of the conventional clotting factors has been widely investigated, but until recently only minor attention has been directed to the equally important endogenous clotting inhibitors.

Laboratory detection of clear-cut hypercoagulability does not necessarily signify that the patient will develop intravascular clotting; however, it does alert the clinician to the propensity to develop this condition. Additional factors or events (surgery, blunt trauma, vasculitis, prolonged bed rest, and many others) are required to convert this tendency for thrombosis into an actual danger. Since there is not an individual test for hypercoagulability, a combination of tests identified as the hypercoagulability panel is necessary to cover the various parameters of the coagulation system in order to obtain meaningful clinical results.

The hypercoagulability panel

The individual tests included in the hypercoagulability panel are listed in Table 1. The following brief comments are explanatory:

1. Thrombin generation test: This test indicates both hyper- and hypo-coagulability.[1] The curve graphically represents the kinetics of thrombin generation in plasma samples during the clotting process. Characteristic patterns are obtained in the hypercoagulable state. This test is independent of the patient's own fibrinogen and requires 30 minutes to be performed.

*From the Departments of Medicine and Obstetrics and Gynecology, University of Colorado Medical Center, 4200 East Ninth Avenue, Denver, Colorado.

TABLE 1
COAGULATION PANEL FOR HYPERCOAGULABILITY EVALUATION

1. Kinetics of thrombin generation (thrombin generation test)	C*
2. Kinetics of fibrin formation (thrombelastography)	C
3. Spontaneous fibrinolytic activity (euglobulin lysis test)	H†
4. Platelet aggregometry for spontaneous platelet aggregation	C(H)
5. Platelet count (phase microscope)	H
6. Test for circulating fibrin monomers	H
7. Fibrinogen level	H
8. Fibrin degradation products	H
9. Antithrombin III activity (antithrombin III time)	H

*C: Test provides a curve rather than one single measurement.
†H: Tests can be carried out with the necessary precautions in heparinized patients.

2. Thrombelastography: The kinetics of fibrin formation is assessed by a continuous recording with the thrombelastograph. This test permits the measurement and analysis of the time elapsing between recalcification and the beginning of fibrin formation, the rate of fibrin formation once it has begun, and the overall rate of the coagulation process.[2]

3. Euglobulin lysis test: A decrease of spontaneous fibrinolytic potential signifies the loss of a protective mechanism against intravascular clotting. In our opinion, a reduced fibrinolytic potential is an aggravating factor when other tests indicate a thrombosis tendency rather than an indicator per se for this propensity.

4. Platelet aggregation: Spontaneous platelet aggregation as measured with an aggregometer has been observed and often is the only clotting abnormality discovered in patients with amaurosis fugax,[4] transient ischemic attacks, and recurrent vertigo.

5. Platelet count: The tendency for thrombosis in patients with markedly elevated platelet counts is well known. Conversely, a low platelet count in patients with a thrombin generation test revealing hypercoagulability is indicative of procoagulant material being released into the circulation.

6. Circulating soluble fibrin monomers: The presence of fibrin monomers indicates that there has recently been a discrete activation of the clotting process up to the stage of monomer formation without resulting in the fibrin clot. These monomers are considered by some investigators as a detectable preliminary stage of intravascular clotting. The ethanol gelation test appears to have merits in identifying fibrin monomers.

7. Fibrinogen: A high level of fibrinogen is an enhancing factor to a hypercoagulable patient.

8. Fibrin degradation products (FDP): Elevated level of FDP, particularly when concomittant with drop of platelet count and fibrinogen level is indicative of disseminated intravascular clotting (DIC) but also observed with extended thrombosis. Absence of FDP does not exclude a mild DIC of which reducing platelet count and fibrinogen level and a reduced (increase only in an acute phase) fibrinolytic activity are good indicators.

9. Antithrombin III activity: This measurement is one of the most important parameters of hypercoagulability. Low antithrombin III activity indicates reduction of an essential natural protection against intravascular clotting. Our own endeavors with antithrombin III activity began in 1960[5] when the test method was developed in our laboratory, and low antithrombin III activity was observed subsequently in patients with thrombosis tendency. In the ensuing years, a significant correlation between a tendency for intravascular clotting and antithrombin III activity has been confirmed by several investigators.[6,7]

Obviously, the propensity for intravascular clotting is more pronounced as an increasing number of individual tests of the hypercoagulability panel indicate hypercoagulability.

Studies of Antithrombin III

1. Oral contraceptives: In an investigation of the effect of oral contraceptives on the clotting system, all three parameters (antithrombin III activity, thrombin generation, and thrombelastograms) were shifted towards hypercoagulability.[2] This resulted in marked hypercoagulability after only ten days of the first cycle of pills. Subsequent

studies with many varying oral contraceptives in different countries all confirmed that the "pill" reduces antithrombin III actvity. Because this effect of the estrogen in the pill is so general, reliable and reproducible test results depend on a number of technical points (most of the technical errors tend to shorten the antithrombin III times and give an erroneously low activity); we believe that antithrombin III activity cannot be used alone to differentiate or identify those women who are at high-risk while taking oral contraceptives.

2. Hereditary deficiency: Familial thrombosis tendency (thrombophilia) can be caused by deficient antithrombin III activity. A careful family history combined with antithrombin III determination is diagnostic.[8]

3. Activity in the young: Antithrombin III activity is high (long antithrombin III times) in infancy and then gradually decreases, reaching normal values in most individuals by their early twenties. This change of antithrombin III times with the age is highly significant ($P < 0.005$).

4. Activity with prothrombin-depressing agents: Patients being treated with drugs such as coumadin have an elevated antithrombin III activity.[9] This fact may be of clinical importance in evaluating the success of such treatment. It is worthwhile to check the antithrombin III levels of patients who produce intravascular clots in spite of the prothrombin time being in the correct "therapeutic range". If the activity of antithrombin III is subnormal or normal, subcutaneous heparin is the choice drug. Heparin does, generally speaking, not change antithrombin III activity.

5. Pitfalls with determinations: As with all sophisticated coagulation tests, antithrombin III determinations provide reliable, reproducible, and clinically meaningful results when the original technic is followed.[9] Some of the most common errors are the following: (a) Blood must be clotted in non-siliconized glass tubes so that the serum is obtained by a standardized procedure; in general, vacutainers are siliconized and therefore not suitable. (b) Blood for antithrombin III determination cannot be stored for any length of time. It is important that the serum is separated from the clot within one hour after complete clotting at room temperature. If this step is delayed, abnormally short values will be obtained. When serum is removed before clotting is completed, grave errors are introduced. The same is true when hemolyzed serum is used. Falsely low antithrombin III times result in both cases. The determination itself must be carried out within two to three hours after clotting and until then the serum should remain at room temperature. (c) Blood or serum samples for antithrombin III determination cannot be shipped or mailed. Antithrombin III exists in a dynamic equilibrium with other proteins and clotting factors which change with time, and the level could be severely and unpredictably altered during shipping. A sample which is carefully hand-carried within 20 minutes from the office to the laboratory would be suitable for antithrombin III levels. (d) The results obtained and the results compared from time to time depend on the reagents used. Topical Thrombin, (Parke Davis and Company), 1000 unit-vials dissolved in 50 per cent glycerol and stored at -15°C gives the most reliable results. Fibrinogen (Bovine Fraction I, Armour Pharmaceuticals) is far superior to human fibrinogen preparations, for the latter are unusable because poor clots are obtained and result in erroneous times. The pH of the barbital buffered saline solution must be corrected to 7.42. (e) At the present time, this test cannot be performed properly with the automated instrumentation presently commercially available. The manual tilting of the sample in a glass tank waterbath thermostate is recommended.

Hypercoagulability Screening for Oral Contraceptives

Mass screening of all women for potential thrombosis tendency prior to prescribing the "pill" would be difficult. Practically and scientifically this would mean performing the entire hypercoagulability panel specifically including the thrombin generation test to detect individuals with pre-existing hypercoagulability. Determination of antithrombin III activity alone is certainly not sufficient, because there are women with a clear-cut

hypercoagulability and normal antithrombin III times. The use of antithrombin III determination alone for detection of potential "clotters" when on the pill is not satisfactory, because of the impossibility of determining the cut-off point. For instance, to postulate that a woman with an antithrombin III time of 15 seconds or less should not receive further oral contraceptives because she might be a potential clotter is an untenable position which would deprive many women unnecessarily of the protection of the "pill". If the antithrombin III determinations could be correlated with simultaneously performed investigation of other hypercoagulability parameters, this would be another matter. However, such an approach is reserved to specialized laboratories and unpractical as a routine procedure at the present time. To perform an isolated antithrombin III test prior to prescribing oral contraceptives would be significant primarily in identifying women with congenital antithrombin III deficiency, a condition which produces a familial thrombosis tendency,[8] and which usually can be revealed by medical history.

Coagulation precautions with oral contraceptives

Individuals who give a personal or family history of intravascular clotting should not be given oral contraceptives. A careful family history is of great importance, for familial thrombosis tendency may be more frequent than hitherto recognized. Individuals with symptoms that may precede cerebral vascular accidents such as migraine headaches should also be excluded from taking the "pill".

During oral contraceptive therapy, procedures known to induce localized or generalized hypercoagulability such as vascular catheterization, angiography, and elective surgery should be avoided. Treatment with corticosteroids, which increases the activity of clotting factors in some patients and prolonged bed rest fall into a higher risk category. For any of these procedures, the patient should be taken off the "pill" for the cycle prior to the elective procedure. Studies have demonstrated that the iatrogenic hypercoagulability disappears completely within three weeks.[2] Obviously, oral contraceptives must be withheld at the first appearance of symptoms which could be interpreted as early sign of intravascular coagulation.

Summary

By a selected series of laboratory tests, hypercoagulability of the blood is detectable with clinically meaningful results. Therefore, a propensity to intravascular clotting (thromboembolism) can be discovered, the iatrogenic hypercoagulability secondary to oral contraceptives studied, and masked hypercoagulability causing clinical failure of the treatment with prothrombin-depressing agents revealed. These tests have to be carefully controlled, and mass screening of patients although "ideal" does not seem pragmatic at the present time. After ten years of experience with the antithrombin III test, we do not believe this test to be an effective method when used alone to evaluate whether or not a woman should receive or continue oral contraceptives. •

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Health sciences education

The new look

Dean C. Fletcher, PhD,* Reno, Nevada

THE PHYSICIAN IN today's world recognizes the importance of his position. He knows where he would like to be going, what he would like to be doing, and what his role in total health care should be. The fact that no one else in the health field seems to understand limits his effectiveness. The nurse, similarly, understands her role. She knows her relationship with patient and her physician and to other members of the team. The medical technologist knows his role and understands how it fits into the total picture. Each individual member of the health team understands his own role, but is concerned about the lack of understanding between roles and between people trained for different roles. The physician in his role of chief has for many years held firm control of the brains of health care, and, unfortunately, in most cases, he has neither fully understood nor has he cared to understand the roles of all the members of the team. What has created these problems, and what can be done about them?

The nation as a whole is experiencing greater inner turmoil than at any time since the Great Civil War. The corporate state has assumed powers intended for the people. There is the problem of a war no one wants, and no one seems to know how to end. Parents don't understand their children, children don't understand their parents, and too frequently, neither is interested in the view of the other. It seems we have overproduced our scientific pool in almost every area but in the medical one. The young generation has turned to the drug scene as a means of escape, or to give them courage to create the revolution necessary to wrest the power from the establishment. And one wonders if they really have anything better to offer.

Surely not the least of these many problems is a health care crisis. We face a future with a critical shortage in most places of physicians, nurses, dietitians, medical technologists, etc. Even now many millions suffer from malnutrition and lack of proper medical care, and there is no way of improving their lot in the foreseeable future.

Our medical schools increase their capacity; we create newer and bigger schools of medicine and of allied health sciences and still continue to compound many of the problems causing the health crisis. We have added over 150 different kinds of physician assistants, and still our crisis grows. It is stated that in the 1970's every physician will need an assisting staff of 24 professionals and others in order to practice "good medicine". Yet in most cases he has never learned to utilize what he has today.

Our medical schools have failed to teach the concept and practice of team medical care. A medical school dean recently stated that he would like to see a change, but his faculty is too steeped in tradition to go along. This appears to be true not only at his school but at virtually all universities and colleges everywhere. To effectively illustrate the sad state of university programming today, I would like to tell a story, the origin of which is unknown to me.

In the deep forested country of India on the banks of a great river there was a village. In order to survive, the people of the village caught fish in the great river and trapped lions in the forest nearby. As time went on the citizens of the

*Director of Student Affairs, University of Nevada.

village became very proficient in catching fish in the streams and trapping the lions in the forest, and as they developed a surplus they sold it down the river. The village grew in affluence and finally the village fathers got together and said, "We need a university in our community to prepare our children for their future lives." All agreed and a university president was hired. He in turn hired a faculty. The faculty came to teach the students how to become expert in catching fish in the stream and trapping lions in the forest. Many years passed and the university grew as did the community. Then one day a great tragedy occurred with earthquake and fire. A new volcano appeared upstream from the village cutting off the great river. The smoke from the volcano lowered the temperature in the forest and the lions moved south. Bears came from the north to live in the forest. The people in the village adjusted to this change in their life by learning to trap bears in the forest and to grow corn in the fields. And as time went on they became more expert and grew in affluence by selling the bear hides and corn to their neighbors in the south. One day the city fathers got together and said, "Look at the crazy university here. Times haven't changed the university, for it is still teaching how to catch fish in the river and trap lions in the forest." So they called in the president of the university and asked him to explain. His answer was, "What, would you have us give up the classics?"

Universities across the country have not yet met face to face the challenge of the future. Their training has for so long been past-centered that they are unprepared to change. In fact, too many of them can see no reason to change. One faculty member put it this way: "What we have been doing the past 20 years has met the needs of the students. There is no need to change." Man is not driving the same automobile he owned 20 years ago, nor wearing the same suit of clothes, nor flying in the same type of airplane. They are all outdated, worn out, inadequate for present needs. *He has moved with the new technology in every way but his teaching.*

"Anyone who thinks the present curriculum makes sense," says Alvin Toffler, "is invited to explain to an intelligent 14-year-old why algebra or French or any other subject is essential for him. Adult answers are almost always evasive. The reason is simple: the present curriculum is a mindless holdover from the past. Why, for example, must teaching be programmed around fixed courses such as English, economics, mathematics, or biology? Why not around stages of the human life cycle: a course on birth, childhood, adolescence, marriage, career, retirement, death. Or around contemporary social problems?"

Change can be unsettling, but it is vital to progress, and any administrator or faculty member who opposes such change has outlived his usefulness. Recently Dr. James Bonner of the California Institute of Technology stated that the scientific knowledge gained between the years of 1950-1960 equalled that learned in all previous time. Between 1960 and 1965 this knowledge doubled again, and if his prediction is correct, it will continue to double at the same rate every three years. With these accelerated changes, how can any university program remain static for even one year?

The dietitian, traditionally schooled in the college of home economics, illustrates another sacrifice to our outmoded educational system. Totally isolated from the other members of the health team, she has difficulty coming to an understanding of the function of the whole. Likewise, while medical lab technologists are trained primarily by undergraduate universities or colleges and hospitals, physical therapists attend one- or two-year speciality schools, either in hospitals or universities; health educators are taught in colleges of education, nurses in nursing schools, and physicians in medical schools. Even a superficial look at the various programs reveals no correlation between them nor any attempt to assist each speciality in understanding the other.

In 1969, a study by the American Medical Association indicated that the teaching of nutrition to medical students is almost nonexistent. By the same token, it could be said that the other specialities have also failed to define the physician's role in their programs.

Organizationally, our universities are so hidebound that they are unwilling or unable to readjust their programs. Again, a faculty member of one university recently said that the medical technology program in his school had operated successfully without change for 20 years, and there was no need to upgrade it now. Another school with change as an

object created committees who, in turn, made plans which were unfortunately submitted to the faculty for evaluation. *Each faculty member simply rescheduled what he had already been doing for years and years and more years.*

Universities don't want to change. They like the comfort of the familiar. Even schools which have briefly tried unstructuring have been frightened back into old patterns by the insecurities of identity-conscious faculty members. Notable exceptions are Case Western University and the University of New Mexico. Case Western University has been without departmental structure for several years, and students coming from there are enthusiastic about the more complete understanding they have of all the interdisciplinary programs. At New Mexico, students and faculty alike are enthusiastic in their praise of the new program.

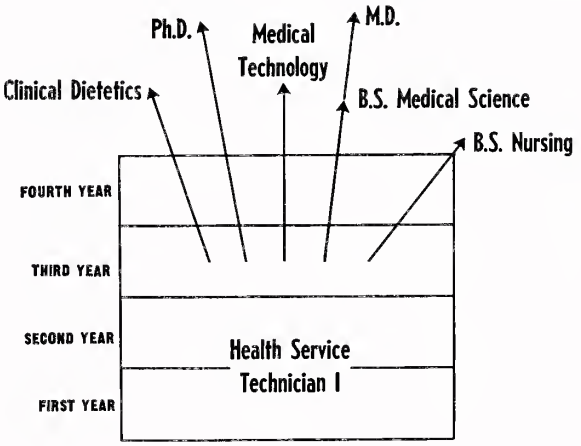
Changes can and should be made at all colleges and universities purposing to prepare trainees for realistic service in the future. Duplications and old fashioned nonessentials should be eliminated, new and more effectve teaching technics employed, and visionary courses for the future made a part of every program. And team roles should be emphasized in order to find more efficient ways of conducting health care. Alvin Toffler in his book *Future Shock* recommends that all universities begin to plan for the future by creating "future" committees. These "future" committees, made up of consumers, workers, students, and faculty, should begin immediately by planning for 20 to 40 years in the future. Toffler states it is no longer necessary for Johnny to understand the past. It is not even sufficient for him to understand the present for the here-and-now environment will soon vanish. Johnny must learn to anticipate direction and rate of change. He must, to put it technically, learn to make repeated, probabilistic, increasingly longe-range assumptions about the future. And so must Johnny's teachers. The "future" committees should provide input to the university at all levels in order to develop within the faculties a desire to keep ahead.

The "future" committee could provide purpose as well as power through alliance with rather than hostility toward youth. By attracting the community and parental participation across the board, the movement can build a broad political base of support for the super-revolution in education.

This is not the entire solution, however. The great new plans must be implemented if they are to be meaningful. Therefore, it becomes necessary to radically change the structure of the university in order for it to become an effective mechanism for the future.

One possible solution for this is shown in Table 1. All programs related to health are housed under one college with a dean not coming from the fields of either medicine or nursing but from an allied health area or from the outside. This person would have to be extremely objective in his views and philosophies. Serving with this dean should be an executive committee made up of representatives of all the health disciplines within the college. There would be no divisions or departments in the traditional manner. There would be programs in medicine, nursing, medical technology, physical therapy, dietetics, clinical nutrition, etc. These programs would be able to draw upon the expertise of several new types of divisions.

TABLE 1
ALL TRAINED FOR ROLES IN THE HEALTH TEAM



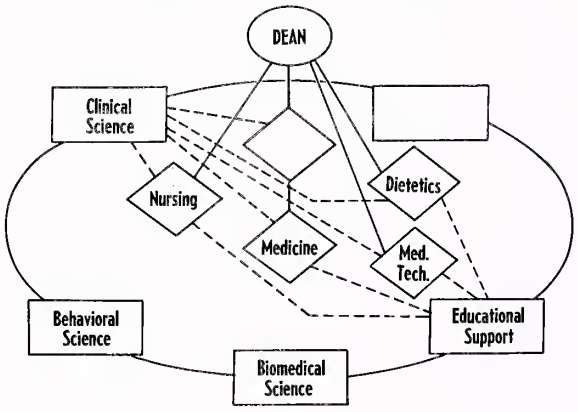
As shown in the Table there could be an Educational Support Division, a Biomedical Sciences Division, a Clinical Sciences Division, a Behavioral Sciences Division, and other divisions commonly related to health sciences could be added as needed. When the nursing program people needed clinical training, the Division of Clinical Sciences, familiar with the clinical needs of all the health sciences, would be there to help. They could help the nurses define their role in relationship to all the other health sciences. Each discipline in turn would seek out each division for the expertise it could provide.

When questions of overlapping or of a territorial rights nature arise, the divisions seeing the total picture could best help to solve these problems. Under this type of program physicians would begin to learn the role of nursing, dietetics, physical therapy, and all the other health-related professions. The concept of the health team should now become a reality to these individuals.

Table 1 also attempts to clarify the relationship of the divisions and programs in a working manner. It would mean the traditional lines and controls would have to be dissolved. Nutritionists and dietitians who are interested in clinical work would no longer be trained in home economics isolated from the rest of the health team. Medical technologists would no longer be trained isolated from other health teams. Physicians who traditionally have been trained to feel that they are the leaders of health profession would under this new program begin to recognize that there are others in the health team; and if you liken the health team to a football team, the physician may not always be the coach and not necessarily the quarterback but may play on the front line from time to time. The dietitian, pharmacist, nurse, or medical technologist may play as coach or quarterback at any given time depending upon the circumstances. With this approach to health training, the disciplines would work together, they would take courses together, they would have field experiences together, they would go to hospitals together, and they would learn to recognize the specialities of each health profession and how they relate one to another. The physician under this type of program may begin to recognize that it might well be advisable for him to have as part of his morning rounds a dietitian who, as he discusses a particular patient, could tell him what this patient needs in the way of diet. The AMA study already mentioned has shown it unlikely that medical schools will ever be able to provide a great deal of nutrition in the curriculum. Therefore, it will always be necessary for them to call on specialists in the dietetics nature. So the dietitian could go with him on his rounds and help him to decide what diet each patient should have.

Table 2 shows the progress of the students through a health science program. All students coming into the program would in their second year obtain an Associate of Arts degree as a health sciences technician. This will be done while they are taking courses that will begin to show them their own specialities. However, we believe that all students in the health sciences should be aware of how to care for a patient so the first year basically teaches students how to care for a patient. This will allow them again to concentrate on health care delivery and to be concerned with the patient. It appears that many physicians know how to treat patients, they know how to medicate them, but they do not know how to care for them. This was borne out particularly when one physician was overheard telling a man's wife that he was about to die and he said," Lady, your husband is going to die. That's the way the cookie crumbles." It is felt that everyone in the health area needs to know patient care before they begin to specialize.

TABLE 2
HEALTH SCIENCE COLLEGE



During the last two years of the four-year program, students will concentrate on how to develop a speciality-type of education. They may learn in detail medical technology, clinical nutrition, nursing, pre-med, or any of the health areas, but at the end of their fourth year they will all receive a Bachelor of Science degree in their given area. It is felt students going through this program would be far more concerned with patient care and the particular needs of the patient than any other type of training program seen. This is the only way for the health care to move.

Some of the courses that may be implemented for this program to train students together are as follows: The first course the students should take is Introduction to Community Health. All students in the health sciences take this course. In it they are sent out into the community to learn what is available in health care, how it is being applied to the various components of the community, rich and poor alike. They should learn if the ghetto areas are receiving the care they need. Are the emergency rooms at hospitals meeting the needs of this community? Are public health facilities functioning in their most efficient role? What programs in health are available in the school systems? This has been a most stimulating course to students and faculty, for they have become action groups. Many students have transferred their major their very first semester from one to another area when they have found the profession they were planning on did not meet the needs that they had. They see the real world of health care for the first time.

The second course recommended is Professional Interaction. The Professional Interaction course lets the students begin to learn how one health profession relates to another. They learn to relate on a one-to-one basis, in small groups. They learn how to begin to understand normal human behavior and explore the beginnings of altered behavior. Beginning their freshman year the students are also introduced to a new chemistry curriculum. It is called Life Sciences Chemistry and now relates inorganic, organic quantitative and qualitative analysis, and biochemistry all together in one two-year program. It has the same concepts as other standard chemistry courses; however, it relates directly to the human body; and instead of teaching polymers of rubber, they learn polymers of DNA and proteins. They analyze gall stones instead of rocks from the street. They learn to do as many as 20 common clinical laboratory procedures.

In the second year students begin to take anatomy and physiology, as well as other courses directly organized to human patient care. Students are also introduced to more community health; they explore behavioral science areas and find that they are much more capable of delivering care even at this point than they had thought possible. During their latter two years they specialize in their given area. Qualified pre-meds move into the medical program. Throughout the second two years there is still a common core of courses that students may take, such as Community Health, in which they may work together as teams to reach for solutions to small community, large community, and finally world problems in health. Students going this route will be prepared, when they complete their training, to come out and work as a health team and be aware of problem solving at all levels of government.

Summary

We have examined the individual roles in the various health professions. We have examined the national problem of education. We have examined the changes that need to take place in the university system in order to prepare for the future and have looked at at least one way of training for the future. It is suggested that you now examine your role in health care delivery in relation to team medicine and the future. •

Diagnostic x-ray and human pollution

Charles D. Magill, MD, Englewood, Colorado

"For the Lord Your God is Bringing You into a Good Land, A Land of Brooks of Water, of Fountains and Depths that Spring Out of Valleys and Hills." Deut. VIII vs. VII.

A YOUNG LADY OF about 20 years of age came into my office complaining of pain in the back and carrying a huge x-ray film (Fig. 1). The radiograph included the structures from the upper femurs to the skull. She had fainted in the chiropractor's office following an adjustment the same morning and was referred subsequently by me to another physician for evaluation of what I suspected was acute pyelonephritis. The x-ray she brought represented at least 200 millirads total blanket exposure, which is about 30 ergs of energy absorbed by each gram of tissue. This amount of radiation should ionize several of her molecules, and her future children's molecules, and her children's children's molecules, et cetera. Will she develop lung cancer or leukemia? Will there be any lower resistance to certain viruses, reduced glandular function, or nonspecific shortening of her life? No one knows for certain, but the American College of Radiology states that "the prudent course at the present time is . . . to assume that there is no lower limit to the radiation dose which might be considered injurious."[8]

A brief was submitted by the Quebec College of Physicians and Surgeons in hearings concerning licensing for chiropractic, describing how the chiropractic film is obtained with a very wide stream of radiation which blankets the whole trunk of the body.[6] In the *Textbook of Office Procedure and Practice Building for the Chiropractic Profession* we find several reasons why the chiropractor requests a "spinograph". It promotes confidence, it creates interest among patients, it procures business, it attracts a better class of patients, it adds prestige in your community, it builds a reliable reputation, it is an investment and not an expense, it provides good interest on your investments, and it helps to eliminate the so-called starvation period that many go through. If the patient objects, there is an answer in this book to tell him that while his doctor has already taken x-rays and nothing wrong was seen, his doctor was looking for subluxations, dislocations, misalignments, etc.[6] The type of x-ray taken by

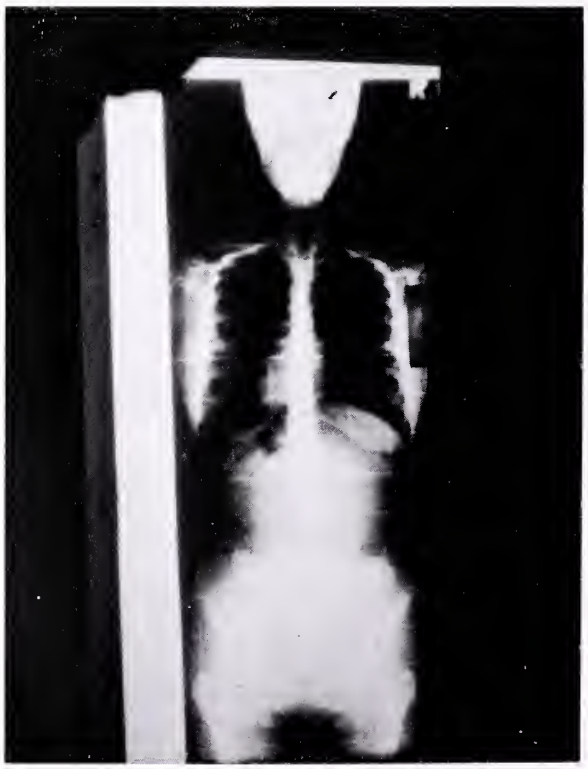


Fig. 1. Chiropractic "spinograph".

chiropractors is generally worthless to orthopaedic surgeons, rheumatologists, neurologists, physiatrists, and neurosurgeons. Even the chiropractor realizes some faint suspicion of overdosage of x-ray when he states that the patient's "life might be shortened as little as two days".

X-ray Pollution

We are all aware that survivors of the Hiroshima blast have a ten times greater incidence of cancer than the average person. We are currently interested in the uranium pilings causing controversy in the Grand Junction, Colorado area in which leftover materials from uranium mining were inadvertently and ignorantly used to fill various areas at that time more economically. As reported in the *Rocky Mountain News* of August 29, 1971: "In sufficient dosage and time, gamma radiation, similar to x-rays, from radium can cause leukemia and genetic damage. Radon daughter radiation can cause lung cancer." That is the concern of the Colorado Health Department. The American College of Radiology makes a statement that "certain effects of radiation on tissue are not apparent for years or even decades after exposure".[8] Carcinogenesis is an example of this phenomena. Dr. Carl Morgen at Oak Ridge, Tennessee, testifying before a Senate Commerce Committee in 1967 said that diagnostic x-ray used at the current rate could lead to 27,000 deaths a year from genetic defects, 1,000 deaths from leukemia, and a nonspecific life-shortening effect on 1,000 persons.[6] Other authors have reported, "We often think of such growth mutations as those resolving in stillbirths or physical malformation at birth. More insidious are the slight genetic mutations resulting in a lower resistance to certain viruses, reduced glandular function, or other such deficiencies which can be passed off from generation to generation."[3]

There is an increasing interest by all of us in x-ray exposures, and a common experience is watching a young patient stare at the x-ray machine as his arm or other part is being exposed (Fig. 2). One also recalls how the anesthetist, scrub nurse, and everyone except the orthopedist and the x-ray technician take protective precautions during exposure of x-ray in surgery, accompanied by certain felicitous remarks about either the benefits or hazards of sterility, whatever one's pleasure might be.

Fig. 2. "I wonder what that thing does."

Fig. 3. "Coning Down". Note collimator limits x-ray beam to illuminated area on table.

A survey by the United States Public Health Service[5] on who orders roentgenograms demonstrates that two per cent of the films are ordered by chiropractors. Most medical scientists are aware that there is no such thing as a perfectly symmetrical radiograph and that asymmetry on the film does not mean disease. The chiropractor is taught to look at the large front view of the spine and read asymmetries as being a joint out of place and recommending that such joint be restored to normal. By his training the chiropractor is not qualified to read anything on an x-ray except perhaps the asymptomatic asymmetry. This means nothing in the scientific understanding of disease.

Radiologic Overkill

In general, the most important determinate of safe, necessary radiographs of high quality is the attitude of the prescribing or supervising doctor. Doctor Daves emphasizes the "intelligent cooperation of referring physicians" and referred to the work load at Colorado General Hospital which dropped 20 per cent the first quarter of 1966 after pep talks to the health staff, suggesting that only radiologic procedures essential to the patient be obtained.[1]

At the present time a considerable list of problems in "x-ray pollution" faces us. These include such items as shooting a set of x-rays at one's office and then having to have the films repeated eleswhere because of poor film, fog, poor contrast, or necessity for multiple views. One wonders about the x-ray student proceeding with lumbosacral films on an obese person without an immediate check with the supervisor. In addition, is the supervising physician away at a meeting while the student works on her third try at a skull series, quietly discarding the poor films? At least once a month I find that a patient under my care who has just had x-rays under my supervision is having a completely new set by an insurance company or social security for third party evaluations. Certainly this is an unnecessarily repeated dose.

By conservative estimate, 50 orthopaedic surgeons in 12 months give an x-ray exposure in the metropolitan area of Denver of 600 extra, unnecessary radiologic examinations. An additional factor causing repetition of films is the inability to obtain films taken in our large institutions such as Denver General, Veterans Administration, and Fitzsimons Hospitals without several days' delay. Perhaps some easier method of making films available to follow-up physicians could be devised by these institutions.

An additional concern is do we really select the views which we wish. Do we select only those views needed to care for the patient? For instance, in a knee x-ray do we need AP, lateral, and oblique for routine trauma; or would we instead like to have a "notch view" (intercondyloid) for a "loose body", patellar view for chondromalacia, or weight bearing films to see if there is any defect in rheumatoid arthritis? We could also accept a slightly inferior film rather than exposing again to x-ray if the slightly inferior film is satisfactory for care of the patient. An example would be a not-too-good spot lumbosacral x-ray when the other routine four views of the lumbosacral area are satisfactory.

There are other abuses listed in Doctor Daves's article entitled "Radiologic Overkill".[1] One is by the "save time", "short cut" physician who hopes that the diagnosis will be on the radiology report, such as the doctor who requests skull films, neck films, shoulder films, and dorsal spine films for the "whiplash patient" with pain in all of these areas when examination shows that the problem is mainly in the neck. Other abuses might be the "procedure du jour", such as the gastric pneumoarteriolaminogram. There are a few situations where useful information may be obtained by special procedures, but physicians should be taught the limited applicability of many radiologic technics as well as the fact that these technics are available.

To minimize abuse of radiologic examination the following check list is submitted (Table 1):

TABLE 1

PRESCRIBING CHECK-LIST FOR PHYSICIANS

1. Obtain in your office only those films you feel qualified to read. If other doctors must read the films later, let them use their judgment and equipment.
2. Obtain for yourself only those views necessary for care of the patient.
3. Repeat films only if you can't see what you need in order to care for the patient.
4. Work tactfully with your subordinates to strive for their best efforts so that the film is right, hopefully, the first time.
5. Use judgment in ordering repeat films for measuring progress or regress of a lesion.
6. Use judgment in ordering films for medicolegal and/or third party examinations.
7. Give dosimeters to your employees and to yourself not only for the safety of all but also to indicate your own concern and savvy.
8. Improve the technical production of your films, working toward the best possible x-rays obtainable with your equipment.
9. Ask females about pregnancy before exposure, and then use judgment in ordering the x-rays.[4]
10. Try to obtain films taken previously, instead of a "new set".

A second check list is provided to help the physician to improve radiologic examination in his office (Table 2). One of the most important of these directions is the concept of "coning down" (Fig. 3). The physician can always obtain additional help from the x-ray sales representative, radiologist, his technician ("radiologic technologist"), and his State Health Department.[7] Scatter is a phenomenon in which x-ray energy bounces around inside of the tissue and inside of the film causing a blurry fogged radiograph. By restricting the beam by coning down, scatter is much reduced. In other words, a "coned down" x-ray is also a much safer x-ray for the patient. By reducing the beam size to the size of the film, the amount of irradiation can be reduced 65 per cent.[4] In other words, make the beam just match the cassette. A good sign on the radiograph is evidence of coning down in which one can see a rough unexposed area around the film. X-rays taken without and with a cone will show much superior quality with the cone. A more detailed adjustable cone is a collimator, which allows even better limiting of the beam with marked improvement in detail.

Contrast can be increased by using lower kilovoltage, coning down with a collimator or cone, grids, and screens. Definition can be improved by as fine focus as possible, which requires adequate film to focus distance (film to tube distance), having the part to be examined and the film as close together as possible, having the best possible contact between the screens and the film (be sure the cassette holders are tight), and of course, immobilizing the part being examined. Additional general technical suggestions include avoiding dirty chemicals, light contamination,

TABLE 2

REMEDY FOR POOR X-RAY CONTRAST

A. Film and Cassettes

1. Add Bucky.
2. Use slower speed film in the cassette.
3. Use faster intensifying screens which not only will decrease the kilovoltage requirement but in turn will result in less scatter with better contrast.
4. Avoid using the cardboard folder (although this will decrease detail slightly).
5. Avoid storing film in too humid or too hot area.
6. Avoid light from accidentally striking the film.
7. Avoid x-ray contamination of the stored film.

B. Manipulation of Patient or X-Ray Tube

1. Align the tube better with the patient and the film.
2. Cone down or add extension cylinder or use a smaller cone.
3. Do not decrease the tube film distance unless you also lower the kilovoltage.

C. Control Panel Plus Processing

1. Decrease the kilovoltage (this will reduce scatter).
2. Do not decrease the M.A.
3. Use the smaller focal spot.
4. Do not overdevelop the film.
5. Do not use incompetent chemicals, such as: (a) poorly mixed chemicals; (b) poor brand of chemicals; (c) chemicals which have been used too long.
6. Do not use higher than normal temperature in development.

and insisting that the technician always measure the part and use a technic chart.

In other words, if the film is poor, here is what to tell your technician: lower the kilovoltage, cone down more, be sure the chemicals are fresh, clean the processor, measure the part and use the chart, try to "lead out" any scatter (place lead around the part being examined), check the type of film for the processor or developing system, and be sure the bucky switch is in.

Conclusions

1. Exposures by x-radiation to the population could be reduced significantly by not allowing chiropractors to take x-rays. •

2. Irradiation could be reduced 20 per cent by more conscientious ordering on the part of the physician.

3. Close attention to detail in technical reduction of the exposure and proper developing can reduce exposure as much as 65 per cent.

4. Unnecessary repeating of films (and thus exposure) can be avoided by clean, tight, right detail in measurement, cleanliness, good chemicals, proper positioning, et cetera:

Dirt, fat, scatter, light
Cause considerable x-ray blight.
Clean, tight, right detail,
leads to joyful x-ray wail! •

ACKNOWLEDGMENTS

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Tuberculin testing and chemoprophylaxis in tuberculosis

*Recommendations of the Colorado Trudeau Society**

TUBERCULOSIS IS A unique entity. It may manifest itself as a dormant infection for decades as evidenced only by a positive tuberculin test, or it may progress to clinical disease by endogenous reinfection or reactivation anytime during the life span of the tuberculin reactor. Because of this uncertainty and the fact that about three-fourths of all new cases of active tuberculosis reported each year developed among those with unrecognized latent infections, preventive measures take on added importance.

Physicians can make a most significant contribution to tuberculosis control by (1) using the tuberculin test routinely in their practice, (2) following all the positive reactors with periodic chest x-rays and (3) prescribing isoniazid (INH) prophylaxis for those at special risk of developing active disease.

Tuberculin Skin Test

The tuberculin skin test[1] should be integrated as a routine procedure with the immunization schedule. It is suggested that it be administered to children at 11 to 12 months of age (prior to live measles vaccine) and, if negative, repeated in youngsters aged five to six, and to adolescents, ages 13 to 15. The test is, of course, useful at any age to rule out the presence of a tuberculous infection but is especially important for this purpose when given to contacts of known active cases.

The Type of Tuberculin Tests Recommended

Physicians and nurses have found the multiple puncture tuberculin tests convenient for office or screening purposes (see Table 1), but all doubtful reactions with these or similar tests should be rechecked with the standard intracutaneous (Mantoux) PPD-Tuberculin 5 TU.

Because of reported instability of potency of reconstituted, tableted PPD-Tuberculin, the Center for Disease Control, U.S.P.H.S., Atlanta, Georgia, now distributes to State Tuberculosis Control Officers PPD products prepared in a diluent containing Tween 80, five parts per million, to minimize adsorption of the tuberculoprotein to containers. One test dose of 0.1 ml of this material is biologically equivalent to 5 TU PPD-S when injected promptly after filling the syringe. The latter minimizes adsorption of the tuberculoprotein to the glass or plastic walls of the syringe. This intermediate test dose of tuberculin (0.0001 mg PPD) in the Tween 80 solution is also called PPD-T. If stored in a refrigerator (2-4°C) when not in use and protected from light, heat, or contamination, this tuberculin product will maintain its antigenic properties for many months as the label indicates.

For those using the tableted PPD-Tuberculin now on the market, the solution should be used only within 30 minutes of reconstitution and injected immediately after loading the syringe.

*From the Colorado Trudeau Society, Tuberculin-Chemoprophylaxis Committee: Roger S. Mitchell, MD, Chairman, Thomas L. Petty, MD, John Sbarbaro, MD, and Carl W. Tempel, MD, Secretary. Address: Colorado Tuberculosis and Respiratory Disease Association, 1600 Race Street, Denver, Colorado 80206.

TABLE 1
TUBERCULIN READINGS

Tuberculin Reaction	Standard 5 TU Mantoux Intradermal Test	Multiple Puncture Screening Tests (Tine, Mono-Vacc, Sterneedle, etc.)
Negative	Induration 0-4 mm	Induration less than 2 mm: Measure the diameter of the largest single reaction or papular area. Separate areas of induration should not be added.
Doubtful	Induration 5-9 mm	Induration more than 2 mm: Measure as above. (Recheck doubtful reactions with Mantoux test.)
Positive	Induration 10 mm or more	A vesicular reaction is positive. Record its presence and measure induration as above. Papular areas coalesce in strong reactions and may be similar to the Mantoux in appearance.

Dual Tests for Doubtful Tuberculin Reactions

For greater precision in distinguishing between tuberculous and non-tuberculous (cross) reactions, retesting can also be done with equivalent doses of two antigens (for example, PPD-Tuberculin in one forearm and PPD-Battey in a corresponding site on the other forearm). Information on antigens available and their use may be obtained from the Tuberculosis Section, Colorado Department of Health or from the Colorado Tuberculosis and Respiratory Disease Association.

Reading and Interpretation of the Tuberculin Test (at 48 to 72 hours)

The reading and interpretation of the tuberculin test, like its administration, is deserving of special attention. For routine tuberculin testing of individuals or groups, the readings established below have proven useful. When active pulmonary tuberculosis is suspected, however, more complete diagnostic studies (bacteriology and x-ray) will be required as the tuberculin test may be doubtful or even negative in rare cases.[2]

The results of the tuberculin test surveys should be recorded in the recipient's personal health record. The entry should show date and type of test given, induration in mm, and vesiculation, if present, for example, 5 Mantoux 10 mm, Tine 15 mm, vesiculated. No attention should be paid to the size of the area of redness. Measurements of induration mean more than the terms "positive" or "doubtful", for comparisons with previous or future tests. If the reaction is positive, chest x-ray findings should be noted.

Chemophophylaxis with INH[3]

The indications for INH in the prevention of tuberculosis are as follows:

1. Tuberculin positive individuals of any age who
   a. failed to react to a properly performed tuberculin test within the previous 12 months —so-called "recent tuberculin converters", or
   b. have a history of recent close contact with an active infectious case.
2. Tuberculin positive children under the age of six.
3. Tuberculin positive adolescents, especially those with
   a. abnormal chest x-ray: findings consistent with inactive primary lesions. *Rule out active tuberculosis*;†
   b. large reactions—15 mm induration or more to 5 TU Mantoux test;
   c. diabetes; or those undergoing corticosteroid treatment for three weeks or more.
4. Tuberculin positive adults with particular risk factors:
   a. abnormal chest x-ray: findings consistent with inactive tuberculosis lesions, particularly if the disease is (1) newly discovered or (2) known to be inactive less than five years, with a history of no drug treatment or inadequate drug treatment. *Rule out active tuberculosis*;†
   b. special clinical situations: unstable diabetes, sarcoidosis, long-term steroid treatment, silicosis, measles, gastrectomy, lymphomas, and pregnancy (starting in the third trimester, especially in the presence of an abnormal chest x-ray).

†*Caution:* Before starting INH prophylaxis, it is necessary to be sure that the tuberculin reactor with an abnormal x-ray does not have active tuberculosis, by use of cultures for tubercle bacilli or other studies. Treatment of active tuberculosis with INH alone is poor practice as two or more drugs are required.

INH Dosage and Administration

INH is given orally in a single daily dose of 300 mg for one year (10 mg per Kg in children, with upper limit of 300 mg). The patient should be seen at least monthly to (1) evaluate cooperation in the taking of medication, (2) rule out drug toxicity, and (3) provide the next month's supply of INH. If symptoms of drug toxicity develop, the most important of which is liver toxicity, the INH should be discontinued. Reactions to this drug are rare.

Conclusions

Tuberculosis is still a significant public health problem and physicians are urged to make a greater effort to prevent this disease. There being no vaccine suitable for general use against tuberculosis in the United States, the prevention of this disease has not received its deserved share of attention in public health programs. It is recommended, therefore, that (1) tuberculin testing be made a companion part of the immunization schedule and (2) tuberculin reactors at special risk of developing active tuberculosis be advised of the danger and given INH prophylaxis for one year if they request and cooperate in the treatment. •

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The physician as a patient*

Stanley Crosbie, MD, Phoenix, Arizona

There are reasons why doctors are poor patients. An appreciation of these reasons may help the physician to take better care of his own patients.

IT IS GENERALLY CONCEDED that doctors make poor patients. Having recently been hospitalized for ten days, I will admit I was not a good patient. Indeed, I was a problem to the physicians, an anathema to the nurses, and a trial to everyone else unfortunate enough to cross my path. Although I am not considered a saint, I am not to my knowledge generally thought of as a curmudgeon. I have the average number of friends and am usually an affable and reasonable person. But put me in a hospital bed, and I become an insufferable boor. Undoubtedly, some will say this is just my warped personality showing; but after years of medical practice during which time it has been my "privilege" to treat many members of my own profession, I am ready to stand on my original premise—doctors make poor patients.

Classified as to their characteristics as patients, doctors fall into four general groups:

(1) Those physicians who have what may be called a "normal", "reasonable" approach to health care—the attitude we would like to see in our own patients. They have regular (yearly) physical examinations and accept,

*Reprints may be requested from the author at 1919 East Claremont Street, Phoenix, Arizona 85016.

and follow, the advice of their physician. They are not over-concerned about minor disabilities but do not neglect those which persist. Unfortunately, although there are apparently no statistics available, the per cent of doctors who may be thus categorized is small.

(2) Perhaps a larger group are those physicians who, while they may not consider themselves immortal, do indeed give the impression that they believe they are immune to disease. Either they think of themselves as a special breed or they think of their patients not as people like themselves. Although this attitude may appear in itself pathologic, it is perhaps not an unusual or unnecessary defense mechanism for doctors who are continuously surrounded by the sick and the dying. The doctor in this group does not appear to worry about his health. He does not consider the possibility of his contracting cancer or coronary artery disease or a CVA. Why, these diseases are his old friends! He has been working with them for years. For one of them to attack him would be like having his faithful old dog bite him. So when the doctor finds himself admitted to a hospital for the treatment of a disease he has doctored so frequently in his patients, he is surprised, resentful, and offended. His feeling of injustice is translated into antisocial behavior, rudeness, and outbreaks of temper quite foreign to his usual good nature.

(3) A third group of doctor patients are the hypochondriacs. The number in this group may be relatively greater than the per cent of hypochondriacs in the general population. The potential for hypochondriasis among physicians is great because of their specialized knowledge, and a hypochondriacal physician with a little imagination can develop a remarkable chain of symptoms and signs of the most serious consequences. Indigestion from some dietary indiscretion coupled with a little exertional tachycardia or dyspnea may make a very convincing story for a dissection of the aorta or myocardial infarct. A little burning on urination and a poor night's sleep or perhaps a few arthritic changes in the dorsal spine may be enough to make the hypochondriacal physician think of glomerulonephritis. He may picture himself with a rising BUN, swelling of the ankles, anemia, going on to hemodialysis and perhaps even a kidney transplant.

(4) The fourth category of physician patients, and this may be a rather large group, are those who you might say willfully and deliberately neglect their own health. Unlike group 1 they do not necessarily consider themselves as supermen. Rather they appear to be afraid to face reality. They may recognize certain signs and symptoms of some disease process in themselves, but they consciously put these thoughts out of mind and immerse themselves in long hours and overwork in an almost pathologic devotion to their duties and obligations as physicians. One might say they have a martyr complex. The per cent of such dedicated physicians is probably less today than it was in the days of the old-fashioned family doctor, but at the next medical meeting ask for a show of hands of those who have had a physical examination during the past year.

While most doctors subscribe to the old cliché that "the doctor who treats himself has a fool for a patient and a fool for a doctor", they cannot help but question another physician's treatment, especially if it differs significantly from their own practices. The treating physician also finds himself in a difficult position. He cannot discuss the case with the doctor-patient as he would with an ordinary patient because the doctor-patient knows too much. Nor can he discuss the case as he would with a consultant, as either the doctor-patient may not be well informed on the condition causing his disability or there may be a poor prognosis which the treating physician is reluctant to disclose. Consequently the treating physician may prefer to avoid any discussion which may result in some paranoid feelings on the part of the doctor-patient. This tendency was noted by Simon and Lumry[1] in a study of 36 physicians treated for psychiatric illness; it is accentuated if the doctor-patient hears snatches of discussion about his case. "Do they know something that has been purposefully kept secret from me?" "Were the blood chemistries abnormal?" "Did the x-rays show something

bad?" "Is it a malignancy?" "Why don't they tell me?" "Do they think I can't take the truth?" As Pinner and Miller[2] have pointed out: "Physicians, as a rule are poor patients; they know too much, and therefore never fully accept the guidance of a doctor as other sick people do. On the other hand they are unable to approach their own case objectively; they are necessarily biased and it is more difficult for them to adjust to a disease condition."

Questioning of the consultant's judgment (I would not go so far as to call it distrust), may lead to another practice that will make the doctor-patient unpopular with the hospital staff. This is the exercise, frequently quite innocent, of pitting one doctor against another. I am satisfied that in the great majority of cases this pattern is not malicious. Perhaps the doctor-patient may think that two (or even three or four) heads are better than one. Usually, however, the doctor-patient is so interested in his own case he thinks other doctors will be interested also and so he tries to discuss his own case with every physician he can buttonhole. Unfortunately the doctor-patient cannot relax, read a good paperback book, and let the treating physician do the worrying; he feels he must share the responsibility of his own care.

As mentioned above and as pointed out by Franklyn, Goolishian, and White[3] the treating physician is under a special strain which may create a "psychological hazard which interferes with the mutuality of interactions between patient and doctor sufficiently to cause the 'medical' patient to be treated differently than the usual private patient." The treating physician is apt to either undertreat the doctor-patient thinking that the latter should share in the responsibility of his own therapy, or he may "overtreat" for fear of making a mistake which might receive more unfavorable publicity than in the case of an ordinary patient.

It is also true, as stated by DeSolo, Aaronson, and Singer,[4] that there is a "role strain" under which all physicians are forced to function. They are expected to be made of "sterner stuff" than the average mortal. The doctor-patient finds that not only his family, but also his peer group make it almost impossible for him to gain relief by playing the "sick role". This is, of course, especially true of psychiatric illness.

Finally, doctors do not accept the little annoyances of hospital care as well as the average person. Doctors enjoy the role of being a physician in a hospital. They are comfortable in the hospital setting. Their ego is satisfied because they are shown great deference and every courtesy. And although they are shown the same deference and courtesy when they enter the hospital as a patient, now they must assume a passive role. They must conform to certain established rules and procedures—and doctors are poor conformists. The doctor does not understand why he must conform to the use of the bed pan. Nor can I blame him. This article is an unavoidable anachronism in the modern hospital. There must be a better way. We have put men on the moon, but the design of the bed pan has not improved in 100 years. We should have a Manhattan Project on the bed pan.

When a practicing physician orders "complete bed rest" for a patient, although he realizes that this means a bed bath, he never really considers the fact. So when the nurse brings a wash basin to the doctor-patient, he is shocked. "What! Me take a bath in that thing? Ridiculous!" It is indeed. Many of us had difficulty becoming reconciled to taking a bath in a steel helmet when we were in the Army, but a helmet is better than a wash basin; it holds more water for one thing. At best with helmet or wash basin, you are just washing in your own dirt, redistributing it in a different pattern. There must be a better way.

Since the doctor is such a poor patient, could this mean the approach to all patients, doctors or lay persons, is wrong? Perhaps we as physicians have become callous and indifferent to the feelings of our patients and should be taught how to empathize with them and their health problems. It is proposed, therefore, that every practicing physician be required by law to accept voluntary admission to a hospital for a period of not less than one week (seven days) per year, during which time he must be kept at strict

bed rest. This requirement will be an amendment to the state licensure act, and no physician will be issued his annual license to practice Medicine and Surgery without completing this hospitalization. The doctor will be permitted to take the hospital bill as a tax deduction.

This proposal may strike some of my medical associates as a rather extreme measure, but after my recent ten days of hospitalization, I feel certain I'm a better man not only spiritually and mentally, but perhaps even physically. More important, is the hope that my patients will benefit from my experience. For example, I'm certain I will not request as many special procedures in the future, especially those that, while of interest to me as a clinician, are of limited value to the patient.

Perhaps it would be advisable to add another requirement. The doctor-patient must have at least one special procedure with his yearly hospitalization. For the first year, I would suggest a simple proctoscopic examination, with enemas until clear, of course. The second year, I believe a cystoscopic examination under topical anesthesia would be in order. The third year, a barium enema with air contrast would be nice. The fourth year, I would let the doctor-patient off easily with a gastroscopic examination and then the fifth year, a bronchoscopic examination. The sixth year, an EMG might be indicated. And then we could start all over again. Some options might be permitted depending on the physician's field of interest or his concern about specific diagnostic possibilities. If he wishes, he could be permitted to substitute an aortagram for cystoscopy or peritoneoscopy for bronchoscopy.

A license to practice medicine would be contingent upon a notarized statement from the hospital administrator that a week's hospitalization had been fulfilled. While this proposal may not make better patients out of doctors it might make doctors more sympathetic and understanding of the problems of their patients. •

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[1] Simon, Werner, and Lumry, Gayle K.: Suicide Among Physician Patients. J. Nervous Mental Dis. 147:2, 1968.

[2] Pinner, Max, and Miller, Benjamin F.: *When Patients Are Doctors.* New York: W. W. Norton and Co., Inc., 1952.

[3] Franklyn, B. S., Goolishian, Harold A., and White, Robert B.: Psychological Hazards Involved In Treatment of Medical Colleagues. Dis. Nervous System: November, 1965.

[4] DeSolo, D. E., Aaronson, S., and Singer, P.: Suicide And Role Strain Among Physicians. Detroit: Am. Psychiat. Meeting: May, 1967.

CALL FOR PAPERS

The University of Colorado School of Medicine announces the 11th Annual Cochems Competition, for which a prize of $2,500 will be awarded to the author of the best paper in the field of "Thrombophlebitis and Basic Vascular Problems".

The competition is open to all persons holding the doctorate degree and entries must be received in triplicate, including all charts, illustrations, and photographs, on or before November 15, 1972. For income tax reasons, eligibility is limited to those physicians who are subject to U.S. income tax regulations.

Inquiries regarding the competition and all manuscripts should be submitted to the Dean, School of Medicine, University of Colorado Medical Center, 4200 East Ninth Avenue, Denver, Colorado 80220.

* * * * *

Papers on any aspect of bioengineering are being solicited for the program of the Tenth Annual Rocky Mountain Bioengineering Symposium, which will be held at the University of Colorado on May 7-9, 1973. Topics for the sessions are expected to include Health Care Delivery, Instrumentation, Prostheses, Pattern Recognition, Computers and Patient Monitoring, Grounding and Patient Safety, Ecological Applications and Biomedical Systems Analysis. The deadline for receipt of abstract (200 words) is January 1, 1973, notification of acceptance February 1, and receipt of completed paper March 1. Send all abstracts to Professor Donald E. Dick, Department of Electrical Engineering, University of Colorado, Boulder, Colorado 80302.

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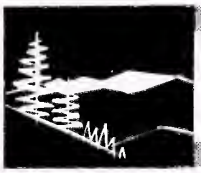


COLORADO

Colorado State Science Fair

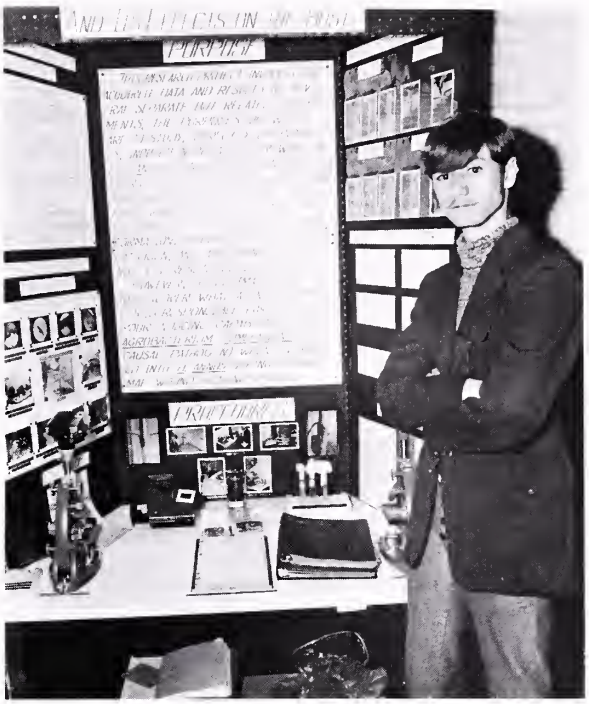
The 17th Annual Colorado State Science Fair was held at Cinderella City on April 14-15, 1972. The Fair entries again this year showed a great improvement. There was a total of 150 exhibits, Junior and Senior High School entries.

Again the Colorado Medical Society provided the administrative leadership for this annual event that helps to show our faith in the young, scientific-minded students, who are working eagerly to help solve the problems of our times, and who are sincerely displaying their faith. Dr. Calvin Fisher, Fair Director, devotes many hours to the planning of the Fair, and with the change of locale this year, this truly was a monumental task, which all worked out wonderfully. The office of the Medical Society has received many letters from the student exhibitors expressing their appreciation for this year's Fair. Mrs. Betty Whitmore and the Auxiliary ladies worked as hostesses for some students overnight, as well as an "information desk" to assist everyone to find their way around the Cinderella City complex. The exhibits were displayed on the Balcony of the Blue Mall and the display area was much more adequate than formerly.

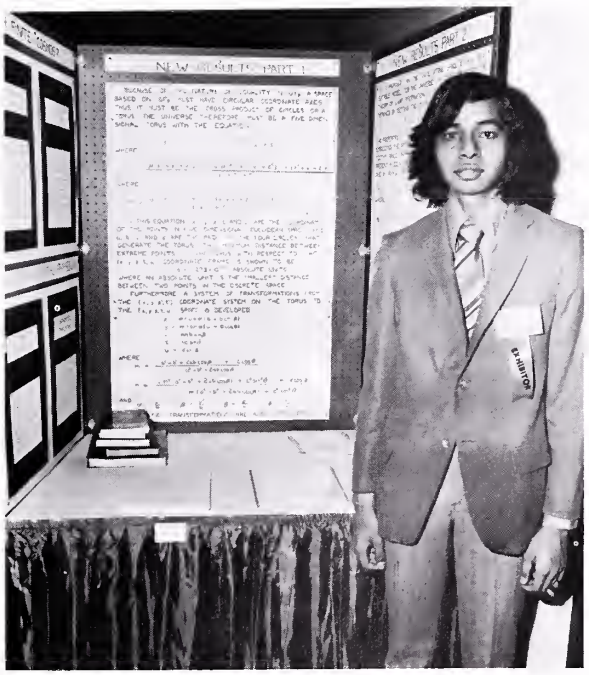
James D. Murtha, a sophomore at Palmer High School in Colorado Springs, was first place, best-of-show, overall winner with his exhibit "A Study of Bacterially Induced Neoplastic Cell Growth". Mr. Murtha also won first place award for Senior High Biological Sciences division; American Cancer Society award for Senior High; first place award presented by the American Society for Microbiology; U. S. Air Force Award for excellence in Life Sciences; first place award for Senior High from the Society of Photographic Scientists and Engineers; certificate of excellence from the U. S. Army; and the Sigma Xi Grand Award was presented to his teacher, Mrs. Marjorie Barnett.

Mr. Arvind Srivastava, an 11th grade student at Poudre High in Fort Collins, was second place overall winner. His exhibit "Characteristics of a Finite Universe" also earned him first place award in Senior High Mathematics division. Mr. Srivastava's entry is one of the very few mathematical entries from Colorado to ever win a trip to the International Fair. This will be Arvind's second trip to the International Fair.

Dr. Fisher accompanied the above two winners to New Orleans on May 1-6 for the International Science and Engineering Fair, all expenses paid for the winners by the Colorado State Science Fair. James Murtha placed 4th in overall winners,

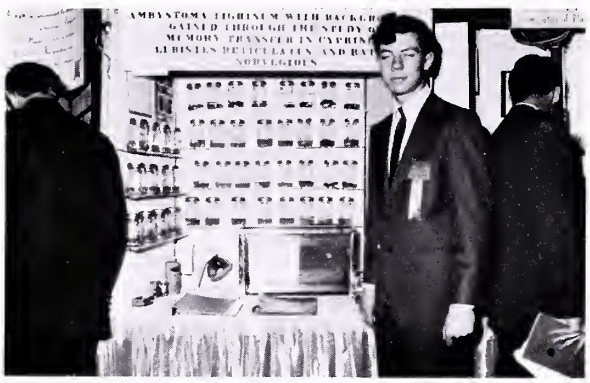


James D. Murtha of Palmer High, Colorado Springs, won honors at the Colorado Science Fair. His exhibit entitled "A Study of Bacterially Induced Neoplastic Cell Growth" placed first among the winners of senior high school awards and first place among senior high biological exhibit awards.



Arvind Srivastava of Poudre High, Fort Collins, won honors for his exhibit entitled "Characteristics of a Finite Universe", which placed second among the winners of senior high school awards and first place among the senior high school mathematics awards.

Third place winner, Jerry Hooper, a 12th grader at Walsh High School in Walsh, Colorado, stands in front of his exhibit "Dissipation of Contaminated Fluids in a Reservoir".



Raymond E. Jones, a junior at Fowler High School, won the Colorado Medical Society award for his exhibit "A Quantitative Analysis of Ambystoma Tigrinum".

Botany, at the International, and Arvind Srivastava placed 3rd, overall, in Mathematics. Both won numerous other special awards. Colorado can be proud of them.

The Colorado Medical Society award was won by Raymond E. Jones, Junior, Fowler High School, Fowler, Colorado. Raymond's exhibit is entitled "A Quantitative Analysis of Ambystoma Tigrinum", and will be on display at the Annual Session in September. The Colorado Medical Society award consists of a plaque, a $25 Savings Bond, and all expenses paid for one night at the Broadmoor to display his exhibit.

You will all have a chance then to see an example of the quality of exhibits shown at the Science Fair, and perhaps realize the time-consuming responsibility of the many judges who study these displays before selecting the winners.

1972 Regular Science Fair Awards

TOP AWARDS—ALL EXHIBITS

Junior High

1st Place: Kim Brown, 9th Grade, Northglenn Junior High, Northglenn, "CO_2 Laser Construction"

2nd Place: Glenn F. Jones, 9th Grade, Fowler Junior High, Fowler, "Alergetic Antigen, A Bridge or a Block?"

3rd Place: Brian A. Pearsall, 8th Grade, Montrose Junior High, Montrose, "Teaching Aid"

Senior High

1st Place: James D. Murtha, 10th Grade, Palmer High, Colorado Springs, "A Study of Bacterially Induced Neoplastic Cell Growth"

2nd Place: Arvind Srivastava, 11th Grade, Poudre High, Fort Collins, "Characteristics of a Finite Universe"

3rd Place: Jerry Hooper, 12th Grade, Walsh High, Walsh, "Dissipation of Contaminated Fluids in a Reservoir"

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PHYSICAL SCIENCES AND ENGINEERING EXHIBIT AWARDS

Junior High

1st Place: Kim Brown, 9th Grade, Northglenn Junior High, Northglenn, "CO_2 Laser Construction"

2nd Place: David Lovering, 9th Grade, Creighton Junior High, Denver, "Particle Study of the Ammonia Molecule"

3rd Place: Donald James Shawcroft, 8th Grade, Centauri, La Jara, "Construction of Simple Generators"

Hon. Men.: George Goebel, 9th Grade, Julesburg High, Julesburg, "The Feasibility of Ion-Propulsion as a Means of Transportation"

Hon. Men.: Bob Charbonnel, 8th Grade, Irving Junior High, Colorado Springs, "A Study of Levers as Applied to the Human Anatomy"

Hon. Men.: Mike Keeley, 8th Grade, St. Mary Magdalene, Denver, "The Wind-Tunnel"

Senior High

1st Place: Jerry J. Hooper, 12th Grade, Walsh High, Walsh, "Dissipation of Contaminated Fluids in a Reservoir"

2nd Place: Karl Sliter, 12th Grade, Saint Mary's High, Colorado Springs, "Cineroc: A Look at a Rocket in Flight"

3rd Place: Doug Holmgren, 11th Grade, Wasson High, Colorado Springs, "An Implant Battery Charger"

Hon. Men.: Dale Baker, 10th Grade, Arickaree High School, Anton, "Nuclear Particle Experimentation"

Hon. Men.: David Morand, 12th Grade, Fountain-Fort Carson High, Fountain, "Electronic Stroboscope"

Hon. Men.: Bruce Theobald, 11th Grade, Basalt High, Basalt, "Determining Terminal Velocity of Spheres in a Closed Case"

MATHEMATICS AWARDS

Junior High

1st Place: Brian Pearsall, 8th Grade, Montrose Junior High, Montrose, "Teaching Aid"

2nd Place: Kay Einspahr, 7th Grade, York Junior High, Thornton, "Extending Your Knowledge"

3rd Place: Harold Meek, 8th Grade, Yuma West School, Yuma, "Computer Programming"

Hon. Men.: Beth Cost, 7th Grade, York Junior High, Thornton, "Sight Unlimited"

Senior High

1st Place: Arvind Srivastava, 11th Grade, Poudre High, Fort Collins, "Characteristics of a Finite Universe"

2nd Place: Gary Michael Scher, 11th Grade, George Washington High, Denver, "An Original Theorem Relating Derivatives, Factorials, and Polytopes"

3rd Place: William Schaffner, 11th Grade, Westminster High, Westminster, "Cellular Automata"

Hon. Men.: Bob Hueftle, 12th Grade, Wasson High, Colorado Springs, "The Cosine Circle"

BIOLOGICAL EXHIBIT AWARDS

Junior High

1st Place: Glenn Jones, 9th Grade, Fowler High, Fowler, "Alergetic Antigen, A Bridge or a Block?"

2nd Place: Duane Yearous, 9th Grade, Fort Morgan Junior High, Fort Morgan, "Does the Nunn Clay Soil Really Need Potassium?"

3rd Place: Adelardo M. Ferrer, 9th Grade, Morey Junior High, Denver, "Effect of Phosphates on Species Diversity in Aquatic Microcosms"

Hon. Men.: Terrell Johns, 8th Grade, Jefferson Junior High, Rocky Ford, "Yeast: Population Explosion"

Hon. Men.: Kathy Johnson, 8th Grade, Wiggins Junior High, Wiggins, "Effects of Mouthwash on Bacteria"

Hon. Men.: Jeffrey Disbrow, 9th Grade, Irving Junior High, Colorado Springs, "The Effects of Mouthwash on Bacteria"

Senior High

1st Place: James D. Murtha, 10th Grade, Palmer High, Colorado Springs, "A Study of Bacterially Induced Neoplastic Cell Growth"

2nd Place: Lynn Norstadt, 10th Grade, Poudre High, Fort Collins, "The Effects of Air Ions on Soybeans"

3rd Place: Linda Ruth Ribnik, 12th Grade, George Washington High, Denver, "Drawing on Experience-proficiency and Psychology in Children's Art"

Hon. Men.: Shelley Schepler, 10th Grade, Frenchmen RE-3, Fleming, "Toothpaste: How Abrasive Are They?"

Hon. Men.: Rada Yevjevich, 12th Grade, Fort Collins High, Fort Collins, "Effects of Doses of Caffeine on Maze Reactions of Merones Ungiuculates"

Hon. Men.: Raymond E. Jones, 11th Grade, Fowler High, Fowler, "A Quantitative Analysis of Ambystoma Tigrinum"

Colorado and Utah Members Elected as Officers

Dr. John B. Hunt, chief deputy coroner of Jefferson County, of Lakewood, Colorado was elected vice president of the American Academy of Forensic Sciences. Dr. Hunt was immediate past chairman of the Academy's General Section and has completed a three-year term on the Executive Committee. Dr. James T. Weston, chief medical examiner for the State of Utah, of Salt Lake City was elected to serve his second term as secretary-treasurer of the Academy. Dr. Davis has also served a three-year term as a member of the Executive Committee, representing the Pathology-Biology Section.

NEW MEXICO

Dr. Scallen Receives Grant

A grant totaling more than $200,000 over the next three years has been received by Dr. Terence J. Scallen, associate professor of biochemistry at the University of New Mexico School of Medicine. The grant, from National Institutes of Health, will be used to help support Dr. Scallen's work in the study of cholesterol.

Experiments in Dr. Scallen's laboratories at UNM have led to the discovery of a sterol "carrier" protein which is required for cholesterol formation. "There are probably thirty to forty steps in cholesterol formation," Dr. Scallen said. "Many of these steps are distinctly different from each other and a large number of enzymes probably are involved. So it may be quite significant that our experiments suggest that a common carrier protein in liver is involved for many, and possibly most, of the steps required to make cholestrol."

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OBITUARIES

Colorado

Gilbert T. Good, MD, died April 20, 1972. He was born in Colorado Springs on March 2, 1920. After obtaining a BA degree in 1942 from the University of Denver, Doctor Good served in World War II as a naval aviator. Upon his return to Colorado he attended the University of Colorado, from which he received his MD degree in 1950. After an internship at the Presbyterian Medical Center in Denver, Doctor Good settled in Yuma, Colorado, serving the area as a general practitioner until his death.

Doctor Good was a member of the American Medical Association, Colorado Medical Society, and Washington-Yuma County Medical Society.

Irwin E. Maxwell, MD, died April 6, 1972 at the age of 69. Born in Oklahoma City, Oklahoma on December 1, 1902, Doctor Maxwell received his MD degree from the Medical College of Evangelists in Loma Linda, California in 1937. He interned at St. Mary's Hospital in Pueblo from 1937 to 1938. After serving in the Army during World War II, Doctor Maxwell established his practice in Cortez as a general surgeon. He was a member of the Colorado Medical Society and Montelores County Medical Society.

Karl T. Neubuerger, MD, died in Denver on March 7, 1972 at the age of 82. Born in Frankfurt-am-Main, Germany on March 5, 1890, Doctor Neubuerger received his MD degree from the University of Freiburg in 1914. After serving in World War I as battalion surgeon, he took up his residency training. In 1925 he began his practice as a pathologist at the German Institute for Psychiatry and taught pathology at the University of Munich.

Owing to increasing pressure from German authorities because of his Jewish ancestry, Doctor Neubuerger emigrated with his wife and children to the United States in 1938. He became an instructor in the pathology department of the University of Colorado School of Medicine and attained a full professorship in 1946. Becoming an American citizen in 1944 and obtaining his Colorado license in 1947, Doctor Neubuerger served on the staffs of Porter Hospital and Rose Memorial Hospital while maintaining his teaching position at the University of Colorado.

Doctor Neubuerger was a member or member emeritus of many national and local professional and specialty societies. Among them were the American Medical Association, Colorado Medical Society, Denver Medical Society, American Association of Pathologists and Bacteriologists, American Association of Neuropathologists, Colorado Neuropsychiatric Society, and Colorado Society of Clinical Pathologists.

His widow Katherina is also an MD and was for several years the examining physician for the Denver Public Schools and the Mountview School for Girls in Morrison, Colorado. He is also survived by two daughters, one son, and ten grandchildren.

William F. Russell, Jr., MD, Lakewood physician and director of the Jefferson County Health Department since 1961, died April 26, 1972 at the age of 57. Born January 24, 1915 in Nashville, Tennessee, Doctor Russell was graduated with a BA degree from the University of Denver in 1938 and received his MD degree from Columbia College in 1944.

In 1945 Doctor Russell married Ruth Kenyon, also a practicing physician. After serving in the Army Medical Corps from 1945 to 1948, he came to the University of Colorado for his residency. In 1951 Doctor Russell was appointed assistant medical director at National Jewish Hospital and assistant director for clinical research in 1955. He was a member of the Colorado Medical Society, Denver Medical Society, Clear Creek Valley Medical Society, and the American Trudeau Society.

In addition to his widow, Doctor Russell is survived by seven daughters, four sons, and eight grandchildren.

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Montana

Robert J. Hill, MD, Whitehall, Montana, died at his home March 28, 1972. Doctor Hill was born on December 23, 1911, in St. Cloud, Minnesota. He received his MD degree in 1936 from the University of Minnesota Medical School. Upon his arrival in Montana in 1937, Doctor Hill engaged in the general practice of medicine in Manhattan; in 1938, he moved to Whitehall, where he continued his practice. In 1940, Doctor Hill founded the Hill Hospital in Whitehall. He was a member of the Silver Bow County Medical Society, the Montana Medical Association, and the American Medical Association.

Nevada

Vernon Cantlon, MD, Reno physician and surgeon and a leader in the movement to establish the University of Nevada School of Medical Sciences, died March 27, 1972. Born in Wadsworth, Nevada on June 16, 1907, he attended the University of Nevada. After obtaining his MD degree from Harvard University in 1932, Doctor Cantlon served his internship at Long Island College Hospital in Brooklyn in 1932-33 and was surgical intern at Massachusetts General Hospital in Boston from 1933 to 1935. He was resident surgeon at Queens General Hospital, Long Island in 1935-36 and at Massachusetts General from 1935 to 1938; he taught surgery there and Harvard Medical School. Doctor Canton served in the U.S. Navy Medical Corps during World War II.

With his brother, Dr. Edwin Cantlon, he raised prize Holstein dairy cattle on the Willomonte Ranch at Wadsworth, home of his maternal grandparents. Developed over the years, the Cantlon dairy herd is regarded as among the best examples of Holstein cattle in the West. It has included two bulls which won gold medals at the Pacific International Livestock Exposition in Portland, Oregon in 1966.

Doctor Cantlon was a member of the American Medical Association, the Nevada State Medical Association which he served as President in 1951, the State Board of Medical Examiners from 1939 to 1944, and was one of the ten founders of the Reno Surgical Society of which he was President in 1950. Doctor Cantlon was also a Diplomate of the American Board of Surgery and a member of the board of governors of the American College of Surgeons.

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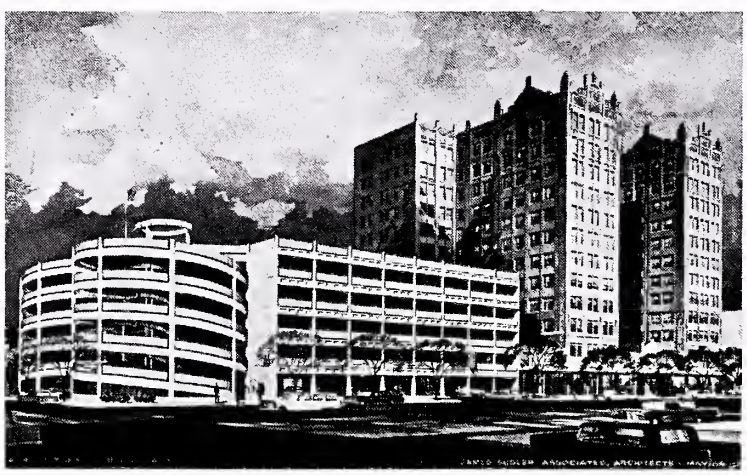

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President: Kenneth A. Platt, Westminster.

President-elect: William A. H. Rettberg, Denver.

Vice President: John W. Haskin, Center.

Treasurer: Dwight C. Dawson, Colorado Springs.

Constitutional Secretary: James A. Henderson, Denver.

Delegates to the A.M.A.: Gatewood C. Milligan, Englewood, Dec. 31, 1973; Robert E. McCurdy, Denver, Dec. 31, 1973; Ray G. Witham, Craig, Dec. 31, 1972.

Alternate Delegates to the A.M.A.: R. Neil Chisholm, Denver, Dec. 31, 1973; John M. Wood, Englewood, Dec. 31, 1972; William Y. Takahashi, Boulder, Dec. 31, 1973.

Speaker, House of Delegates: James A. Philpott, Jr., Denver.

Vice Speaker, House of Delegates: Joseph S. Pollard, Jr., Colorado Springs.

Foundation Advocate: Charles B. Kingry, Denver.

Scientific Editor for Colorado and Chairman of the Editorial Board, Rocky Mountain Medical Journal: Douglas W. Macomber, Denver.

Assistant Scientific Editor for Colorado, Rocky Mountain Medical Journal: Carl H. McLauthlin, Denver.

Executive Director: Mr. Donald G. Derry, 1809 E. 18th Ave., Denver. Office Telephone (303) 399-1222.

Montana Medical Association

OFFICERS—1971-72—Terms of Officers and Committeemen expire at the Annual Meeting in the year indicated. Where no year is indicated the term is for one year only and expires at the 1972 Annual Meeting.

President: John Pfaff, Jr., Great Falls.

President-elect: Hollis K. Lefever, Lewistown.

Vice President: John R. Burgess, Helena.

Secretary-Treasurer: Robert P. Yost, Missoula.

Assistant Secretary-Treasurer: William E. Hadcock, Conrad.

Delegate to the A.M.A.: Herbert T. Caraway, Billings.

Alternate Delegate to the A.M.A.: Mark B. Listerud, Wolf Point.

Executive Committee: John Pfaff, Jr., Great Falls; Hollis K. Lefever, Lewistown; John R. Burgess, Helena; Robert P. Yost, Missoula; William E. Hadcock, Conrad; Herbert T. Caraway, Billings; Mark B. Listerud, Wolf Point; Richard L. Peterson, Hamilton; John S. Anderson, Helena.

Scientific Editor for Montana, Rocky Mountain Medical Journal: Gerald A. Diettert, Missoula.

Associate Editor, Rocky Mountain Medical Journal: Mr. L. Russell Hegland, Billings.

Executive Secretary: Mr. L. Russell Hegland, 1236 North 28th St. (P.O. Box 1692) Billings 59103. Telephone (406) 252-6673.

Nevada State Medical Association

OFFICERS—1971-72—Terms of Officers and Committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at th 1972 Annual Session.

President: William D. O'Gorman, Las Vegas.

President-elect: John P. Sande, Reno.

Secretary-Treasurer: John W. Callister, Reno.

Immediate Past President: V. E. Elliott, Fallon.

Delegate to A.M.A.: Leslie A. Moren, Elko.

Alternate Delegate to A.M.A.: Kenneth E. Turner, Las Vegas.

Scientific Editor for Nevada, Rocky Mountain Medical Journal: Harry J. McKinnon, Las Vegas.

Assistant Scientific Editor for Nevada, Rocky Mountain Medical Journal: Wesley W. Hall, Reno.

Associate Editor, Rocky Mountain Medical Journal: Mr. Nelson B. Neff, Reno.

Executive Director: Mr. Nelson B. Neff, 3660 Baker Lane, Reno 89502. Telephone (702) 323-6788.

New Mexico Medical Society

OFFICERS—1971-72—Terms of Officers and Committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at the 1972 Annual Session.

President: Vaun T. Floyd, Albuquerque.

President-Elect: Don R. Clark, Roswell.

Vice President: Armin T. Keil, Raton.

Secretary-Treasurer: Ronald V. Dorn, Jr., Albuquerque.

Immediate Past President: Harry D. Ellis, Santa Fe.

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Contraindications: Children 14 years or less; senile patients; history or symptoms of G.I. inflammation or ulceration including severe, recurrent or persistent dyspepsia; history or presence of drug allergy; blood dyscrasias; renal, hepatic or cardiac dysfunction; hypertension; thyroid disease; systemic edema; stomatitis and salivary gland enlargement due to the drug; polymyalgia rheumatica and temporal arteritis; patients receiving other potent chemotherapeutic agents, or long-term anticoagulant therapy.
Warnings: Age, weight, dosage, duration of therapy, existence of concomitant diseases, and concurrent potent chemotherapy affect incidence of toxic reactions. Carefully instruct and observe the individual patient, especially the aging (forty years and over) who have increased susceptibility to the toxicity of the drug. Use lowest effective dosage. Weigh initially unpredictable benefits against potential risk of severe, even fatal, reactions. The disease condition itself is unaltered by the drug. Use with caution in first trimester of pregnancy and in nursing mothers. Drug may appear in cord blood and breast milk. Serious, even fatal, blood dyscrasias, including aplastic anemia, may occur suddenly despite regular hemograms, and may become manifest days or weeks after cessation of drug. Any significant change in total white count, relative decrease in granulocytes, appearance of immature forms, or fall in hematocrit should signal immediate cessation of therapy and complete hematologic investigation. Unexplained bleeding involving CNS, adrenals, and G.I. tract has occurred. The drug may potentiate action of insulin, sulfonylurea, and sulfonamide-type agents. Carefully observe patients taking these agents. Nontoxic and toxic goiters and myxedema have been reported (the drug reduces iodine uptake by the thyroid). Blurred vision can be a significant toxic symptom worthy of a complete ophthalmological examination. Swelling of ankles or face in patients under sixty may be prevented by reducing dosage. If edema occurs in patients over sixty, discontinue drug.
Precautions: The following should be accomplished at regular intervals: Careful detailed history for disease being treated and detection of earliest signs of adverse reactions; complete physical examination including check of patient's weight; complete weekly (especially for the aging) or an every two week blood check; pertinent laboratory studies. Caution patients about participating in activity requiring alertness and coordination, as driving a car, etc. Cases of leukemia have been reported in patients with a history of short- and long-term therapy. The majority of these patients were over forty. Remember that arthritic-type pains can be the presenting symptom of leukemia.
Adverse Reactions: This is a potent drug; its misuse can lead to serious results. Review detailed information before beginning therapy. Ulcerative esophagitis, acute and reactivated gastric and duodenal ulcer with perforation and hemorrhage, ulceration and perforation of large bowel, occult G.I. bleeding with anemia, gastritis, epigastric pain, hematemesis, dyspepsia, nausea, vomiting and diarrhea, abdominal distention, agranulocytosis, aplastic anemia, hemolytic anemia, anemia due to blood loss including occult G.I. bleeding, thrombocytopenia, pancytopenia, leukemia, leukopenia, bone marrow depression, sodium and chloride retention, water retention and edema, plasma dilution, respiratory alkalosis, metabolic acidosis, fatal and nonfatal hepatitis (cholestasis may or may not be prominent), petechiae, purpura without thrombocytopenia, toxic pruritus, erythema nodosum, erythema multiforme, Stevens-Johnson syndrome, Lyell's syndrome (toxic necrotizing epidermolysis), exfoliative dermatitis, serum sickness, hypersensitivity angiitis (polyarteritis), anaphylactic shock, urticaria, arthralgia, fever, rashes (all allergic reactions require prompt and permanent withdrawal of the drug), proteinuria, hematuria, oliguria, anuria, renal failure with azotemia, glomerulonephritis, acute tubular necrosis, nephrotic syndrome, bilateral renal cortical necrosis, renal stones, ureteral obstruction with uric acid crystals due to uricosuric action of drug, impaired renal function, cardiac decompensation, hypertension, pericarditis, diffuse interstitial myocarditis with muscle necrosis, perivascular granulomata, aggravation of temporal arteritis in patients with polymyalgia rheumatica, optic neuritis, blurred vision, retinal hemorrhage, toxic amblyopia, retinal detachment, hearing loss, hyperglycemia, thyroid hyperplasia, toxic goiter association of hyperthyroidism and hypothyroidism (causal relationship not established), agitation, confusional states, lethargy; CNS reactions associated with overdosage, including convulsions, euphoria, psychosis, depression, headaches, hallucinations, giddiness, vertigo, coma, hyperventilation, insomnia; ulcerative stomatitis, salivary gland enlargement.
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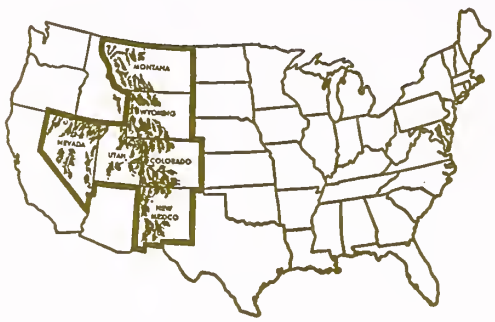

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To the Editor:

I have just read the article by Dr. Harvey Phelps entitled, "Observations on High Altitude Coal Miners", which appeared in the April 1972 issue of the *Rocky Mountain Medical Journal*. Dr. Phelps writes with a great deal of knowledge of the conditions under which miners work and shows his great understanding of many of the problems with which they are faced.

This letter is being sent to you for the following reason: We have had occasion to examine a great many of the people about whom Dr. Phelps writes in his article, i.e., miners who are considered disabled and were referred for examination through the various insurance companies, including the State Compensation Insurance Fund, for the question of disability.

In the group studied at this office, we were in agreement with Dr. Phelps on some occasions regarding the interpretation of x-rays, but in many, there was no question in my mind that the x-rays were quite negative, i.e., showed no evidence of nodular or linear infiltrations compatible with any type of lung disease. It is true that many of them had cough, expectoration and dyspnea. It is also true that in a very large proportion of the cases, there was a lengthy cigarette smoking history. One might also add that working in cold or damp surroundings with a considerable amount of dust would also add to the problems of chronic bronchitis with cough, expectoration and wheezing.

The question really arises as to whether Dr. Phelps and I are not discussing two different diseases, he emphasizing the importance of coal dust changes in the lungs, and I emphasizing the chronic bronchitis which one finds so often in the cigarette smoker who lives and works under conditions which may promote such a bronchitis. The blood gas changes which he refers to could very well be explained by the bronchitis which we see so often rather than the presence or absence of the minimal changes in the lungs which he feels are so frequently present, and which I feel are absent.

We also had occasion to check many of the patients on treadmill studies with a needle in place in the artery, from which samples of blood could be drawn under many different circumstances while they were still on the treadmill. In the majority of instances in which his findings were those of a marked drop in blood arterial oxygen levels, upon which he places such a large emphasis as an index of disability in miners, rather than upon x-ray changes or respiratory mechanics, we were unable to duplicate this. Rather, we found that the blood was either the same or slightly better than it was before exercise.

I should also like to call attention to Table 3 on Page 62, in which the average PO_2 was given with and without x-ray changes. It should be noted that the spread is really from approximately 63.2 up to 70.1. We find these blood gas values to be quite within normal limits in the greatest majority of people, and certainly this is true for this particular age group, i.e., 55-65.

While I am in much sympathy with Dr. Phelps regarding the plight of miners who must live and work under poor conditions, I must caution the readers of the *Rocky Mountain Medical Journal* to read the article very carefully and to make their own decisions regarding the conclusions which have been drawn.

Allan Hurst, MD
Denver, Colorado

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To the Editor:

In response to Dr. Allan Hurst's letter to the *Rocky Mountain Medical Journal,* I do not disagree greatly with Dr. Hurst. In his letter Dr. Hurst was referring to State Compensation Insurance Fund, which by definition of the law has to show significant changes on the x-ray. Therefore, if the x-ray shows very little change, by law, one has to assume that it is not due to pneumoconiosis.

I suspect that a number of people are disabled without significant changes on the chest x-ray due to pneumoconiosis. We have quite a large number of individuals who are non-cigarette smokers who have a low residual volume, who have perfectly normal spirometrics, and who have significant changes in their blood gases which do not fit the picture of chronic bronchitis.

I do not criticize the State Compensation Insurance Fund because the disability is prescribed by law rather than evidence of disability. My main criticism was concerning Social Security, in which the etiology of the disability is not important. With Social Security the main determination is that of disability. Again, I am not speaking to the Federal Coal Mine Safety Act in 1969, better known as the Black Lung Law.

I was interested in Dr. Hurst's comments concerning the treadmill. Of course, we have all used treadmill studies in the past in evaluating disability, however, in our particular study I prefer the 8" step-up test because we could do studies at the mine and at various other locations without hauling a large treadmill around. I recall several cases in which Dr. Hurst had evaluated individuals on the treadmill which did indeed show an increase in their arterial PO_2 after treadmilling for six minutes. We had done studies on the same individual with the 8" step-up test which showed a rather marked drop in the arterial oxygen after one minute after stepping up and down for 30 times in one minute. We have recently been doing treadmill studies on all of our patients because this appears to be the way that Social Security wants disability studies done. We have recently done treadmill studies on a number of individuals on whom we have previously done 8" step-up tests and, much to our surprise, we have found five or six who had a low PO_2 at rest and on exercise the PO_2 markedly improved. This brings up an important observation which needs further study, that being which is the best evaluation for disability—a steady state on a treadmill or a step up and down test on an 8" stool at 30 times per minute. We know that most people who are working do not work in a steady state situation. We also know that most work is done in spurts which would be more closely aligned to the 8" step-up test. We also know that at least one-third of the miners whom I have evaluated and found disabled had a marked polycythemia, that is a hematocrit over 55 per cent.

I am grateful to Dr. Hurst for his comments and I feel that they are perfectly valid, and we have found a phenomenon of which I personally was not aware—on a steady state on a treadmill many individuals improve their oxygen, whereas on a short burst of exercise the oxygen drops. I think this is a significant observation and I must admit that I do not know how to interpret it at this time. However, I strongly suspect that perhaps the treadmill study may not be a valid test for determining disability, i.e., the ability to perform work. It is also of interest that we virtually never see an improvement in the arterial oxygen during exertion on individuals with obstructive lung disease. Since most of the non-smoking coal miners do not have obstructive lung disease and their spirometrics are normal, on the treadmill they hyperventilate and may improve the transfer of oxygen across the alveolar membrane. In those individuals on whom we have done both treadmill and 8" step-up test, a number did indeed improve the arterial PO_2 on the treadmill but had a marked drop in the arterial PO_2 on the 8" step-up test. All of these individuals had normal spirometrics and were non-cigarette smokers. It is also of interest that all of those individuals who did show the increase in the arterial PO_2 on the treadmill showed a significant drop in the PCO_2, which would indicate that they were indeed hyperventilating.

I realize that this is too few patients to draw conclusions. However, it does relieve my concern to some extent about the differences between the exercise blood gases on some of the individuals that were studied by Dr. Hurst and myself. I plan to do a number of studies comparing the 8" step-up test with the six minute treadmill studies.

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– George Sarton, from "The History of Medicine Versus the History of Art"

Would it be useful in clinical practice to have government predetermine drugs of choice?

Opinion

Results of a survey of physicians:

13.3%
Yes, it would be useful.

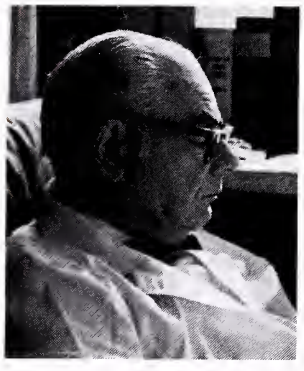
86.7%
No, it would not be useful.

Dialogue

Would it be useful in clinical practice to have government predetermine drugs of choice?

Doctor of Medicine

Walter Modell, M.D.,
Professor of Pharmacology,
Cornell University
Medical College,
Editor,
Clinical Pharmacology
& Therapeutics,
Drugs of Choice,
Rational Drug Therapy



The proposition that government should determine one or two "drugs of choice" within a given therapeutic class reflects the belief that a similarity in molecular structure insures a close similarity in pharmacologic effect. But this is by no means the rule. An obvious example would be in the field of diuretics, where a small change in chemical structure accounts for substantial differences in concomitant effects such as potassium excretion.

Any attempt to dictate the "drug of choice" would be complicated by the fact that some populations demonstrate a bimodal distribution in their reaction to drugs. If the data on drug response are mixed for the total population, one drug will appear to be as useful as the other. But if drug response is reported separately for different segments of the population, drug A will be found to be better for one group and drug B for the other.

It may, of course, be possible to determine drugs of choice in particular categories on a broad statistical basis. But there are always certain patients in whom a drug produces odd, unpredictable or idiosyncratic reactions. So, though a drug might statistically be the most useful one in a given situation, individual variations in response might make it the *incorrect* one.

The point I wish to make is that if two, three, four or more drugs in one class are of approximately equal merit, that in itself is justification for their availability. Exceptional cases do arise in which one drug would be useful to a certain segment of the population and another drug would be of no use at all. In the practice of medicine, the physician must be prepared to treat the routine as well as the unusual case.

Another objection to the determination of a drug of choice is that precise statements of *relative* efficacy are very difficult to make—much more difficult than statements of efficacy. For example, in testing drug efficacy, it is easy to determine the difference between a drug that is effective in treating a condition and one that is not at all effective. Thus, it is fairly easy to determine whether a drug is more effective than a placebo. But if you compare one drug that is effective with another drug that is also effective, and the relative differences between them are very slight, statements of relative efficacy may be very difficult to make with assurance.

I do not mean to imply that relative efficacy statements are not useful or can never be made. With some groups of drugs (e.g., analgesics), extensive study and precise methodology have yielded useful information on relative efficacy. But in most situations, such information can be acquired only through studies encompassing three to five years of use in many more patients than are used to compare drugs with a placebo for the introduction of a drug into commerce. It is really only after practitioners use a drug extensively that relative safety and efficacy in practice can really be determined.

The Bureau of Drugs h suggested the package i sert as a possible means communicating informati on relative efficacy of dru to the physician. I find th objectionable, since I c not believe the physici should have to rely on th source for final scienti truth. There is also a pra tical objection: Since fe physicians actually di pense drugs, they seldo see the package insert. I any event, I would mai tain that the physicia should know what drug h wants and why without d pending on the governme or the manufacturer to te him.

Undoubtedly, physician are swamped by excessiv numbers of drugs in som therapeutic categories. An I am well aware that man drugs within such cate gories could be eliminate without any loss, or per haps even some profit, t the practice of medicine But, in my opinion, neithe the FDA nor any othe single group has the exper tise and the wisdom neces sary to determine the on "drug of choice" in al areas of medical practice.

Maker of Medicine

enneth G. Kohlstaedt, M.D.,
Vice President,
Medical Research,
Eli Lilly and Company

In my opinion, it is not ıe function of any governent or private regulatory ;ency to designate a "drug choice." This determinaon should be made by the hysician after he has reeived full information on ıe properties of a drug, nd then it will be based on is experience with this rug and his knowledge of ıe individual patient who seeking treatment.

If an evaluation of comarative efficacy were to be ıade, particularly by govrnment, at the time a new rug is being approved for ıarketing, it would be a reat disservice to medine and thus to the patient the consumer. For example, when a new therapeuc agent is introduced, on ıe basis of limited knowldge, it may be considered ɔ be more potent, more ffective, or safer than roducts already on the ıarket. Conceivably, at his time the new drug ould be labeled "the drug f choice." But as addiional clinical experience is ccumulated, new evidence ıay become available. ıater, it may be apparent that the established products should not be so easily dismissed.

Variation in patient response to drugs constitutes one of the major obstacles to the determination of "drugs of choice." We are just beginning to open the door on pharmacogenetics, but it is evident that genetic differences cause wide variations in the way drugs are absorbed, metabolized, etc. This fact alone is sufficient to make unrealistic the idea that there is one drug in each class to be used for every human being.

The problem of determining relative drug efficacy is an extremely complicated one. Comparison with other drugs of the same class should not be a prerequisite for marketing a new substance. In some therapeutic areas, it may be difficult to make accurate comparisons. For example, in the treatment of infections it is not possible to conduct crossover studies. Recovery may be influenced by factors which cannot be controlled or measured, i.e., natural host resistance and virulence of infective agents. A drug's acceptability must often be judged on the basis of its own performance, and this may be limited to experience in a relatively small patient population. If the introduction of a new drug must await the adequate establishment of relative efficacy, the duration of clinical trial and extent of studies would be greatly prolonged, particularly for rare or unusual conditions. The availability of a new drug would be delayed. Many patients might suffer needlessly and lives might be lost.

Relative efficacy can best be established by experience in a general patient population through regular channels of clinical practice. The physician considers the patient as a whole, which means the patient often has multiple problems and drugs must be selected with this in mind. Hence, a "drug of choice" in an uncomplicated case may not be the best drug for a patient with associated problems. Publication of well-controlled studies in medical journals may provide comparative evidence; discussions at medical meetings, presentations at postgraduate courses, and the new audio-visual technology may bring evidence to physicians on comparative therapy. In a free medical marketplace, a drug that does not measure up will fall into disuse. For example, broad clinical experience has established vitamin B_{12} as the "drug of choice" for the treatment of primary pernicious anemia. No amount of advertising or promotional effort by the manufacturer could increase the use of liver extract for this anemia. However, a physician may wish to employ parenteral liver preparations for a special purpose.

In the field of surgery, peer review in the hospital has brought significant improvement in the use of new techniques and procedures. Something of this nature would be useful in the area of drug therapy. However, it should be developed by the medical profession itself and would necessitate, for its proper function, an improvement in the dissemination of reliable data on clinical pharmacology of drugs under consideration.

Ideally, information on the relative efficacy of drugs should be gathered and assessed by the physicians who actually administer the specific agents to a specific patient population. To do this, they will need even more information on the drugs they use — information that the pharmaceutical manufacturers must begin to provide if government regulation of *"drugs of choice"* is to be avoided.

Opinion & Dialogue

What is your opinion, doctor?
Send us your comments on the above issue.

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*Palmer, E. D.: *Clinical Gastroenterology*, ed. 2, New York, Hoeber Medical Division, Harper & Row, 1963, p. 206.

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HIGH RISK INFANT CARE
October 9-13 (Limited)
American College of Physicians

PULMONARY DISEASES (Tentative)
November 8-11, 1972

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November 27-28, 1972

For further information on these meetings, write: Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East Ninth Avenue, Denver, Colorado 80220.

Wyoming State Medical Society
69TH ANNUAL MEETING
Jackson Lake Lodge, Moran, Wyoming
August 29-September 1, 1972

For further information, write: Wyoming State Medical Society, P.O. Box 1387, Cheyenne, Wyoming 82001.

Montana-Wyoming Chapter, American College of Surgeons
ANNUAL MEETING
Jackson Hole, Wyoming
August 17-19, 1972

Montana Medical Association
94TH ANNUAL MEETING
Florence Motor Hotel, Missoula, Montana
September 14-16, 1972

For further information, write: Montana Medical Association, P.O. Box 1692, Billings, Montana 59103.

Fitzsimons General Hospital, University of Colorado School of Medicine, and American Thoracic Society
25TH ANNUAL SYMPOSIUM ON PULMONARY DISEASES
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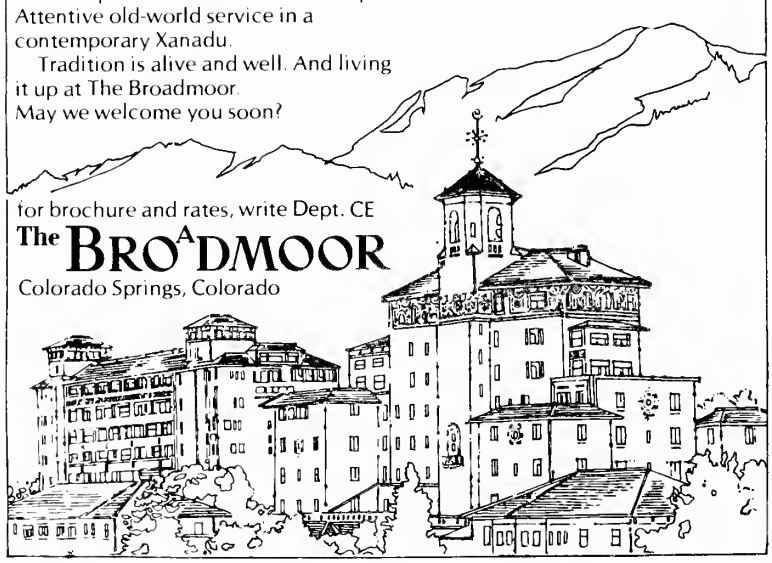

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ANNUAL MEETING
Convention Center, Dallas, Texas
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For further information, write: C. M. Kos, MD, Executive Secretary-Treasurer, American Academy of Ophthalmology and Otolaryngology, 15 Second Street, S.W., Rochester, Minnesota 55901.

WESTERN INDUSTRIAL HEALTH CONFERENCE
Newporter Inn, Newport Beach, California
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American College of Gastroenterology
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American College of Emergency Physicians
FOURTH ANNUAL SCIENTIFIC ASSEMBLY
San Francisco, California
November 8-10, 1972

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Will his return to work mean the return of undue psychic tension?

When it's mandatory to keep the post-coronary patient calm, consider Valium (diazepam).

Although he's promised to take it easy back on the job, you know he's going back to the same stressful circumstances that may have contributed to his hospitalization. If he experiences excessive anxiety and tension because of overreaction to stress, your prescription for Valium can bring relief. During the period of readjustment Valium can quiet undue anxiety.

For moderate states of psychic tension, 5-mg or 2-mg Valium tablets *b.i.d.* to *q.i.d.* can usually provide reliable relief. For severe tension/anxiety states, the 10-mg tablets often produce desired results.

The most commonly reported side effects are drowsiness, ataxia and fatigue. Until individual response is determined, caution patient against driving or operating dangerous machinery.

Valium® (diazepam)

For the tense cardiac patient who must be kept calm

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

Dosage: Individualize for maximum beneficial effect. *Adults:* Tension, anxiety and psychoneurotic states, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed; adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d.; adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. *Geriatric or debilitated patients:* 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) *Children:* 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

Supplied: Valium® (diazepam) Tablets, 2 mg, 5 mg and 10 mg; bottles of 100 and 500. All strengths also available in Tel-E-Dose® packages of 1000.

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Nutley, N.J. 07110

MEDICAL SCHOOL NOTES

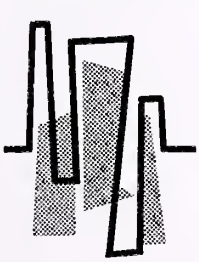
University of Colorado Medical Center

The University of Colorado Medical Center has received a $118,580 grant from the Denver-based Colorado-Wyoming Regional Medical Program (CWRMP) for the first year of a three-year project to establish a Regional Pediatric Hemodialysis Center which will eventually serve a 16-state area. Operation of the Center on an expanded basis will be available at the University by August 1972. The new Center will be one of only five or six in the world designed expressly for children.

The Pediatric Dialysis Center is equipped to meet four specific needs: (1) to prepare children with permanent kidney failure for transplantation and to sustain them until acceptable donor kidneys can be found; (2) to sustain children who reject transplanted kidneys; (3) to provide treatment for many cases of accidental poisoning in children when the poison can be dialyzed out of the body, and (4) to tide patients through episodes of acute kidney failure when there is a good chance that the kidneys will recover without transplant.

University of New Mexico School of Medicine

The University of New Mexico School of Medicine has been awarded a $3.375 million grant from the National Cancer Institute to build a major Cancer Research and Treatment Center. This is in addition to the $1 million bond issue that was approved by the New Mexico State Legislature last year to help with construction of the Center. Another $100,000 was appropriated for planning and staffing. This grant will make the University of New Mexico one of the leading cancer research centers in the nation. Construction of the Center is expected to begin next fall, with the building being completed by late 1973.



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Physicians Practice Management

JOHN E. POPHAM, J.D., C.L.U.
(303) 344-1364
1350 CHAMBERS ROAD, SUITE 101
AURORA, COLORADO 80010

The Center will have all current treatment methods available (such as surgery, x-ray, and chemotherapy) plus a potentially unique treatment method using the $57 million Clinton P. Anderson Meson Physics Facility now under construction in Los Alamos. The Meson Facility's medical potential involves treatment with a beam of negative pi mesons from the accelerator, figuratively "exploding" deep tumors which are unreachable by current treatment methods. The use of mesons for cancer treatment is still experimental, however, and their usefulness cannot be considered proved until trials have been made.

In the care of the cancer patient, the Center will stress the "team approach" by working with doctors throughout New Mexico. A team of specialists at the Medical School will see cancer patients referred to them and also will travel around the state, when requested, to visit patients in clinics and local hospitals in cooperation with the patients' own physicians. By using the outpatient team approach, the Center will be able to provide top consultation and management at less expense to the patients by minimizing hospital care and keeping patients on the job.

Physicians from New Mexico and surrounding areas will be able to refer patients to the Center in three ways: (1) when a specialist has diagnosed a specific cancer in a patient, he can send him to the Center for confirmation on how treatment should be managed; (2) a doctor, suspecting a patient has cancer, may send him to the Center for diagnostic testing and treatment recommendation, to be returned to his doctor or the doctor's associate for treatment; or (3) a patient could be sent to the Center for diagnostic testing and treatment, then be referred back to his doctor. Constant contact will be kept between the Center and the patient's own doctor.

University of Nevada School of Medical Sciences

MEDLINE, which links the National Library of Medicine in Bethesda, Maryland to the Life and Health Sciences Library at the University of Nevada, Reno, became operational in May. This service, which is available free of charge to all health professionals in Nevada, was explained in the May issue (page 76) of our *Journal*.

In an average of 15 minutes, the service can supply the 25 most recent citations in many health publications dealing in a specific health area. Requests for citations from northern Nevada should be directed to Mrs. Maurica G. Osborne, librarian at the University library, while southern Nevada health personnel should make their requests to Mrs. Jean O'Neill, the medical librarian at the Southern Nevada Memorial Hospital.

When irritable colon feels like this

..in the presence of spasm or hypermotility, gas distension and discomfort, **KINESED®** provides more complete relief:

- ☐ **belladonna alkaloids—for the hyperactive bowel**
- ☐ **simethicone—for accompanying distension and pain due to gas**
- ☐ **phenobarbital—for associated anxiety and tension**

Composition: Each chewable, fruit-flavored, scored tablet contains: 16 mg. phenobarbital (warning: may be habit-forming); 0.1 mg. hyoscyamine sulfate; 0.02 mg. atropine sulfate; 0.007 mg. scopolamine hydrobromide; 40 mg. simethicone.
Contraindications: Hypersensitivity to barbiturates or belladonna alkaloids, glaucoma, advanced renal or hepatic disease.
Precautions: Administer with caution to patients with incipient glaucoma, bladder neck obstruction or urinary bladder atony. Prolonged use of barbiturates may be habit-forming.
Side effects: Blurred vision, dry mouth, dysuria, and other atropine-like side effects may occur at high doses, but are only rarely noted at recommended dosages.
Dosage: Adults: One or two tablets three or four times daily. Dosage can be adjusted depending on diagnosis and severity of symptoms. Children 2 to 12 years: One half or one tablet three or four times daily. Tablets may be chewed or swallowed with liquids.

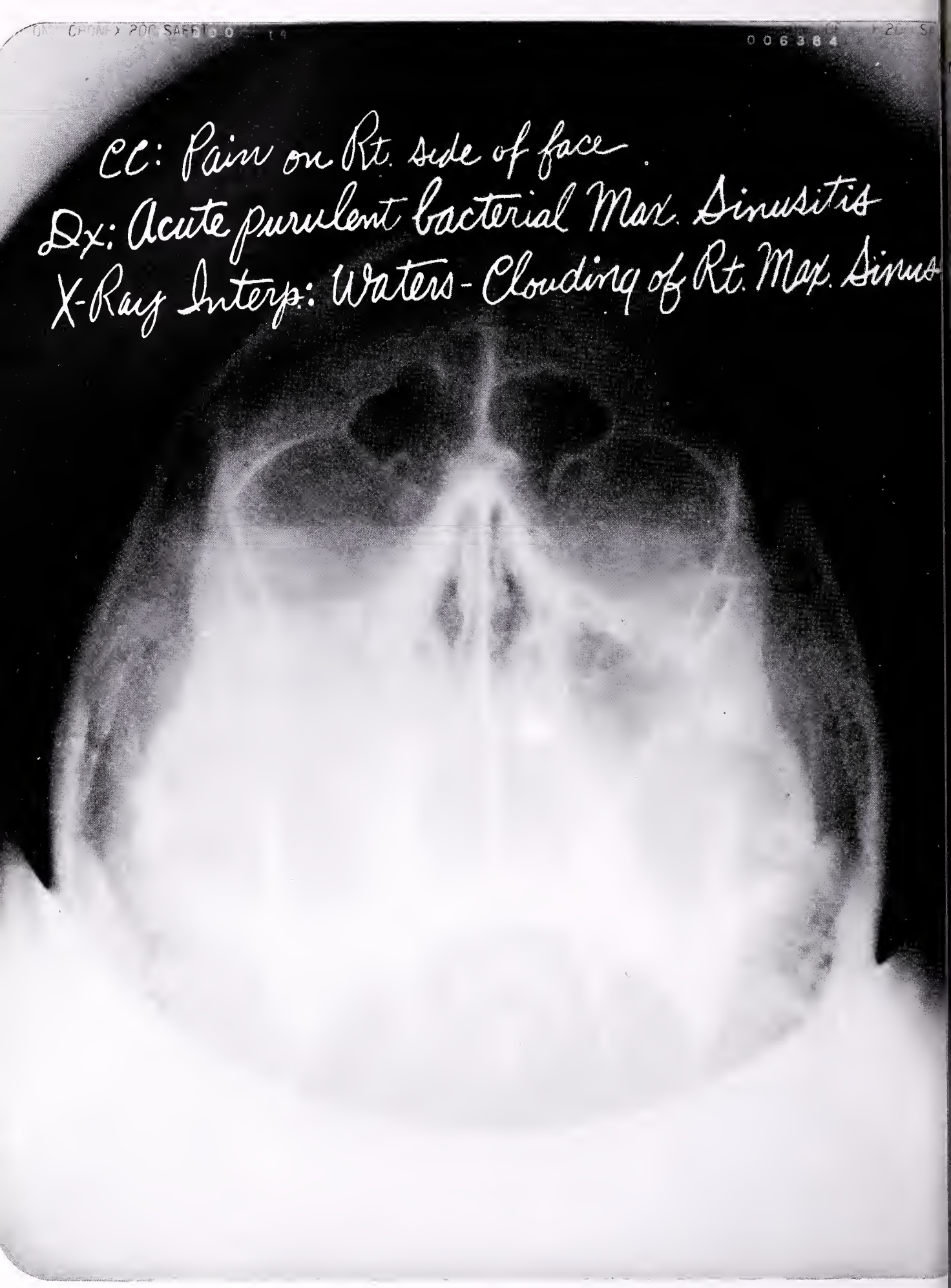
STUART PHARMACEUTICALS | Pasadena, California 91109 | Division of ATLAS CHEMICAL INDUSTRIES, INC.

(from the Greek **kinetikos,**
to move,
and the Latin **sedatus,**
to calm)

KINESED®

antispasmodic/sedative/antiflatulent

Spring peeper (tree frog, *Hyla crucifer*): this small amphibian can expand its throat membrane with air until it is twice the size of its head.



X-ray provided by Manhattan Eye, Ear and Throat Hospital

There are many frustrations in treating acute sinusitis. Cleocin manages most of the bacterial ones.

Inadequate drainage, chronic rhinitis, allergy, exposure to temperature extremes, and other factors can delay recovery from acute sinusitis.

It's helpful to have an antibiotic like Cleocin HCl (clindamycin HCl hydrate, Upjohn) that can take care of most of the gram-positive bacterial problems related to the disease.

As one study* of 52 outpatients showed, acute maxillary sinusitis was associated with staphylococci in 50% of the group, with pneumococci in 25%, and with streptococci and various other organisms (chiefly gram-negative) in the remainder. Significantly, one-half of these staphylococcal infections were resistant to both penicillin and tetracycline (all were sensitive to erythromycin and chloramphenicol). Although not a part of this study, many other clinical and bacteriologic reports[1] have shown that such gram-positive bacteria, which most often are associated with acute sinusitis, are usually susceptible to Cleocin.

Can be taken before, with, or after meals

The total absorption of Cleocin is virtually unaffected by the presence of food in the GI tract.[1] Cleocin thus can be administered as prescribed without interfering with the patient's mealtimes.

Useful in patients hypersensitive to penicillin

Cleocin's chemical structure bears no relationship to penicillin or the cephalosporins. Cleocin therefore may be especially useful in patients with acute sinusitis who report a history of hypersensitivity to these antibiotics. Although hypersensitivity reactions have been uncommon with Cleocin, it should be used cautiously in atopic individuals. Cleocin is not recommended in the lincomycin-sensitive patient.

Please see following page for further prescribing information.

Cleocin® HCl 150 mg capsules

clindamycin HCl hydrate, Upjohn

1. Reynolds, R. C., et al.: Bull. Johns Hopkins Hosp. 114:269, 1964
*. Data on file, Medical Research Department, The Upjohn Company

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Side effects: In studies of 1,416 patients involving 92 clinical investigators, side effects were reported in 8.2%.[1] Diarrhea or loose stools were noted in 3% of these cases (one patient with bloody stools). In a few instances, diarrhea lasted several days. A slightly higher incidence of diarrhea or loose stools has been reported by some investigators in subsequent studies.

Toxicity: No irreversible hematologic, renal, dermatologic, or neurologic abnormalities have been reported.[1] Transient leukopenia and eosinophilia have been observed. Elevations of alkaline phosphatase and serum transaminases were observed in a few instances. As with other antibiotics, periodic liver function tests and blood counts should be performed during prolonged therapy.

In acute sinusitis and other upper respiratory infections due to susceptible staphylococci, streptococci, and pneumococci.

Cleocin® HCl

clindamycin HCl hydrate, Upjohn

Each preparation contains:	Clindamycin HCl hydrate equivalent to clindamycin base
150 mg Capsules	150 mg
75 mg Capsules	75 mg

Cleocin (clindamycin, Upjohn) is a new semisynthetic antibiotic praduced from the parent compaund lincomycin and provides more *in vitro* potency, better oral absarption and fewer gastrointestinal side effects than the parent compaund.

Cleocin HCl (clindamycin HCl hydrate) is indicated in infections of the upper and lawer respiratory tract, skin and soft tissue, and, adjunctively, dental infections caused by gram-positive organisms which are susceptible to its action, particularly streptococci, pneumococci and staphylococci. As with all antibiatics, *in vitro* susceptibility studies should be performed.

CONTRAINDICATIONS: Patients previously found to be hypersensitive to this compound ar ta lincomycin.

WARNINGS: Safety for use in pregnancy not established. Not indicated in the newborn (infants belaw 30 days of age).

PRECAUTIONS: Prescribe with caution in atopic individuals. Perform periodic liver function tests and blood counts during prolonged therapy. The serum half-life in patients with markedly reduced renal function is approximately twice that in normal patients; hemodialysis and peritoneal dialysis do not effectively remove Cleocin from the blood. Therefore, with severe renal insufficiency, determine serum levels of clindamycin periodically and decrease the dose appropriately. Shauld overgrawth of nonsusceptible organisms—particularly yeasts—occur, take appropriate clinically indicated measures.

ADVERSE REACTIONS: Generally well tolerated in clinical efficacy studies. Side effects reported in 8.2% of 1,416 patients. Of the total, 6.9% reported gastrointestinal side effects and 1.3% reported other side effects. Diarrhea or loose stools were reported in 3%. *Gastrointestinal:* Symptoms included abdominal pain, nausea, vamiting and diarrhea ar laose stools. In a few instances, diarrhea lasted for several days; one case of bloody staals was reported. *Hematopoietic:* Transient neutropenia (leukapenia) and eosinophilia have been reported; relationship to therapy is unknown. Na irreversible hematologic toxicity has been reparted. *Skin and Mucous Membranes:* Skin rash and urticaria have been reported infrequently. *Hypersensitivity Reactions:* A few cases of hypersensitivity reaction have been reported. If hypersensitivity occurs, discontinue drug and have available the usual agents (epinephrine, corticasteroids, antihistamines) for emergency treatment. *Liver:* Although no direct relationship of Cleocin HCl (clindamycin HCl hydrate) to liver dysfunction has been noted and significance of such change is unknown, transient abnormalities in liver function tests (elevations of alkaline phosphatase and serum transaminases) have been observed in a few instances. Also, abnormal liver function test values at the beginning of therapy have returned to normal during therapy.

DOSAGE AND ADMINISTRATION: *Adults:* Mild to moderately severe infections—150 to 300 mg every 6 hours. Severe infections—300 to 450 mg every 6 hours.

Children: Mild to moderately severe infections—8 to 16 mg/kg/day (4 to 8 mg/lb/day) divided into three or four equal doses. Severe infections—16 to 20 mg/kg/day (8 to 10 mg/lb/day) divided into three or four equal doses.

Note: With β-hemolytic streptococcal infections, treatment should continue for at least 10 days to diminish the likelihood of subsequent rheumatic fever or glomerulonephritis.

SUPPLIED: *150 mg Capsules*—Bottles of 16's and 100's. *75 mg Capsules*—Bottles of 16's and 100's. *Sensitivity Disks*—2 μg. *Sensitivity Powder*—Vials.

For additional product information, see your Upjohn representative or consult package insert. MED B-4-S (LNU-3) JA71-1565

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NEW FOR ULCER...
LIQUID MYLANTA®-II

GREATER NEUTRALIZING IMPACT

- ☐ more neutralizing action per teaspoonful than standard antacids
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- ☐ pleasant tasting / rapidly effective
- ☐ non-constipating / non-laxating

MYLANTA®-II LIQUID

aluminum and magnesium hydroxides plus simethicone

NEW HIGH POTENCY ANTACID FOR RELIEF OF ULCER PAIN

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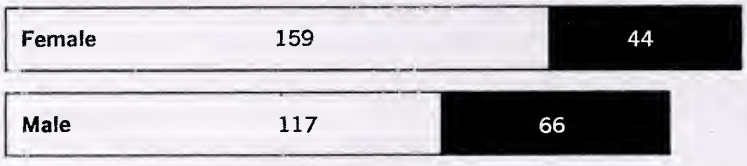
What it means to live and work in Tipton County, Tennessee

Persons who are white and over 40 have one chance in four of having solar keratoses... which may be premalignant

An epidemiologic study* conducted in Tipton County, Tennessee, revealed that 28.5% of white persons over 40 had solar keratoses; most had multiple lesions. Cluster sampling projected an estimated prevalence of 32.5% for white males and 19.5% for white females.

Though this is an unusually high percentage of affected persons, these lesions can occur in any white population, wherever people work or play out of doors.

Prevalence of solar keratoses in white persons over 40 in Tipton County, Tennessee



*Data on file, Hoffmann-La Roche Inc., Nutley, New Jersey.

Solar, actinic, senile keratoses

Called by many names, the typical lesion is flat or slightly elevated, brownish or reddish in color, papular, dry, adherent, rough, sharply defined; usually multiple lesions, chiefly on exposed portions of the skin.

Sequence/selectivity of response

Erythema in areas of lesions may begin after several days of therapy; height of reaction (only in affected areas)* usually occurs within two weeks, declining after discontinuation of therapy. Since this response is so predictable, lesions that do not respond should be biopsied to rule out the presence of a frank neoplasm.

Cosmetic results

Cosmetic results are highly favorable. Incidence of scarring is low—important with multiple facial lesions. Efudex should be applied with care near the eyes, nose and mouth.

5% cream–a Roche exclusive

Only Roche formulates the 5% cream... high in patient acceptability... high in clinical efficacy, especially for lesions of hands and forearms... economical.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Multiple actinic or solar keratoses.

Contraindications: Patients with known hypersensitivity to any of its components.

Warnings: If occlusive dressing used, may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.

Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.

Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with nonmetal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.

How Supplied: Solution, 10-ml drop dispensers—containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)aminomethane, hydroxypropyl cellulose, parabens (methyl and propyl) and disodium edetate.

Cream, 25-Gm tubes—containing 5% fluorouracil in a vanishing cream base consisting of white petrolatum, stearyl alcohol, propylene glycol, polysorbate 60 and parabens (methyl and propyl).

an alternative to conventional therapy

Efudex®

(fluorouracil)

cream/solution

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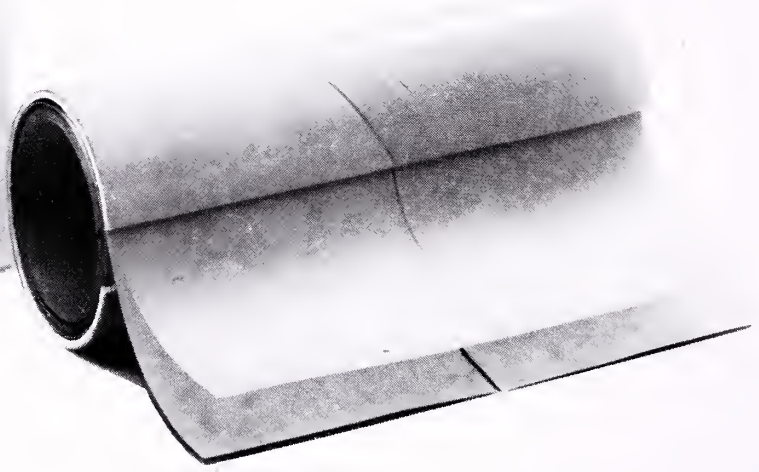
Nutley, N.J. 07110

One of the familiar line of Cordran® flurandrenolide products



Additional information available to the profession on request.

200469

Lilly

Eli Lilly and Company
Indianapolis, Indiana 46206

*Cradagrave**

WHAT DOES IT MEAN? Nothing. It is another coined phrase (this time mine) to represent cradle-to-grave financing of medical care. We of the medical profession know that this is impossible—yet, by never-ending legislative moves we plod slowly forward toward such a catastrophic panacea.

Financing of Medicare and Medicaid, so easily legislated, has become a nightmare. Its costs rise yearly. What, then, is to happen for future financing as each generation lives longer? Should not some step be taken now to foresee the overwhelming bill for medical care of the future? I do not portend to know the answer as a physician. It does seem logical to me, however, to begin now to save to meet this inevitable expense.

About three and one-half million babies are born each year. Why not put ten dollars for each new child in a Federal Government trust for the future health of this group and put that money to work to make money for the care of these children in old age? Thirty-five million dollars collecting interest over the years can be a tidy sum for their care in the future. Many astute governmental financiers may have thought of and discarded this proposal years ago. Being completely overcome by the thought of a million dollars, much less the billions that are carelessly spoken of by government agencies daily, I merely wish to pursue the proposition that each little man like me has to plan to survive the future by deciding what can be done now for the time some years hence when money will be needed for purposes of "just living".

For the immediate present every man, woman, and child is striving to find his way through the jungle of taxes. Unless a move is made now to assure in some way care of the elderly by a different method than taxation at the needed time to foot the bill for health care costs, we may all be taxed out of existence!

You may now discard my coined supercilious phrase of "CRADAGRAVE" because I sincerely hope no one will take on federal health care from birth to death without first finding a mechanism of providing the funds that will be needed to pay for it.

William G. Erickson, MD, President
Wyoming State Medical Society

*This short contributed editorial contains a great message. It should be on every bulletin board, in the hands of every congressman and, somehow, placed before every American. How about placing it in the newsletters of our churches and service clubs—and everywhere else where it will be seen, read, and cause people to think. . . . Ed.

*Who Needs the AMA?**

THE ETERNAL CRY is raised, who needs the AMA? What does it do for me? It's too liberal! It's too reactionary! It's too conservative!

Anyone who has followed the AMA knows that the voices of dissension and criticism are now being heard in that organization. As all organizations must change to survive, the AMA is changing. What direction it takes depends on those of you who are interested enough to have a part of the action.

There is not a single physician in this country today who has not benefited from the AMA when one considers the fantastic amount of work that they have done on a national scale in all facets of medicine and public health. A look at their journals, magazines, committees, councils, and task forces will vouch for this.

I think it is morally unacceptable for us to share in the benefits of the AMA without supporting the AMA.

*Excerpt from a speech by Edward Siegel, MD, to the Medical Society of New York, of which he is president.

Medical Profession's Future

We hear much talk in the United States today about minorities—their rights, their responsibilities, and the changes Society must make to accommodate them. One minority we have heard little or nothing about, as such, is the medical profession. This group too has rights, has lived with its responsibilities for centuries, and has made few demands on Society except to ask that they be allowed to practice their profession according to established ideals and traditions.

Most doctors would not readily accept the premise that they are a minority—yet it is clear that the profession is going to face changes imposed from without, imposed by Society or by government representing what it believes to be the will of Society, under the heading of what is at the moment a topical subject—"The *right* to Health Care". If physicians will accept the fact that they are a minority, then they must frame their strategy in the battle to preserve the private practice of medicine in new and innovative ways.

Recently, officers of the Wyoming State Medical Society traveled 4,400 miles in the state visiting doctors, talking, and explaining problems which are likely to arise in the future. One thought became evident again and again in these visits—*Doctors are ready to make changes, if they can have a strong voice in the method of change and the content of the modifications.*

The major problem is that individual physicians don't have the resources by themselves to thrust their innovative ideas and better technics into the councils of government for discussion and to lobby for action. This job then must fall to physicians banded together—or under another name—county, state, and national medical societies or associations.

This white-cloaked minority can do little relying on the divided efforts of individuals. They must look to the organized groups in medicine—groups, which in turn must, to use an old western phrase, "take the bit in their mouth" and get involved in what is many times derogatorily described as medical politics. The physician minority must take a lesson from some of the other minorities in our country. Doctors must talk about their problems, their hopes and dreams, their beliefs—not to each other but to the public, the men and women who form public opinion, who create public pressure for change, and to the lawmakers who react and frame new legislation and the bureaucrats who administer federal and state programs.

And this minority movement starts with one—the doctor who gets involved in shaping his future. Effective action then follows through the only means he has available—his Medical Society!

Robert G. Smith
Executive Secretary
Wyoming State Medical Society

Wyoming's Contribution to Continuing Medical Education

With this July issue of the *Rocky Mountain Medical Journal* devoted to scientific papers presented by Wyoming physicians, we again hope that our colleagues around the Rocky Mountain area will enjoy these articles.

The contributions for scientific papers from our state emanate from those presented at our Annual Winter Seminar. This meeting has blossomed into one of the finest. Not only are the local contributions of high quality but the presentations of our guest speakers are provocative and stimulating. As a consequence, the combination of the Winter Seminar with the subsequent publication of papers in this annual issue of the *Journal* adds up to a really significant contribution in continuing medical education.

From my viewpoint, I would predict that both the Winter Seminar and the July Wyoming issue of the *Rocky Mountain Medical Journal* will continue to be a winning combination for many years ahead.

Francis A. Barrett, MD
Wyoming Editor

Presidential address*

Fenworth M. Downing, MD, Sheridan, Wyoming

THANK YOU FOR THE opportunity to serve as President of the Wyoming State Medical Society the past year. I appreciate the help that you have given me. I especially thank our Executive Secretary, Mr. Robert Smith, for excellent help. He is on his way to being one of the best executive secretaries in the United States.

This past year was a legislative year. We were about 50 per cent successful in getting bills passed which we wanted but were not able to defeat some bills which should have never been approved by legislative committees. The lesson which was brought home to us was that more doctors must get to know the members of the legislature from their home areas, so that when certain bills are discussed the legislature will listen to them. This cannot be done after the legislature meets, but must be done before election and during the off years.

Upon the subject of WYOPAC, unless we, as doctors, get interested in politics and work for and support members of congress who are friendly to us, we will lose our privilege of being our own boss and having our private practices. There are too many politicians who want to regulate us and the practice of medicine. We can support and elect congressmen who are friendly to us by supporting them financially and also by giving community support. We need sustaining memberships as well as regular members of WYOPAC.

The membership in the Wyoming State Medical Society is the highest in history this year. I hope that you will anticipate contributing even more to our Society and its endeavors in the future. We must work together to protect our interests. Membership in the AMA is just as vital. Who else is going to fight our battles? We should realize that the AMA is made up of doctors like ourselves. Actually, lobbying represents a small proportion of overall AMA activity. May I suggest that all of you read "Where Do We Stand?" which has been put out by the AMA. At the last annual meeting the House of Delegates instructed the Council and the officers of the Wyoming State Medical Society to form the Wyoming Medical Service Foundation. This has been accomplished. Peer review has been transferred to the Wyoming Medical Service and has been ably run by Dr. Don Hunton, Chairman of the Peer Review Committee. The Foundation has been interested in other programs. We have applied for a grant to investigate the feasibility of having an "HMO" in the Rock Springs and Green River area. Meetings have been held with the doctors, hospital administrators, heads of unions, Blue Cross and Blue Shield, and interested laymen of this area. We feel that if any HMO's are set up in the state that the doctors of the state should be in control of them instead of union or laymen groups.

In order for Wyoming Medical Service to be effective, every doctor in Wyoming should be a member, and in the near future you will be contacted to become a member of the Wyoming Medical Service Foundation.

Dr. John J. Corbett has continued his excellent work on medical education. The Society benefits from his ability. The Women's Medical Auxiliary, under the able leadership of Mrs. Ellie Corbett, has been very active. I hope more doctors' wives will become active. There is a great potential for political action in the Women's Auxiliary.

*Presented before the 68th Annual Meeting of the Wyoming State Medical Society, Jackson Hole, August 31-September 3, 1971.

I wish to compliment Dr. Frank Barrett for his election as Chairman of WICHE, and also Dr. Tom Nicholas as Chairman of the Regional Advisory Group for the Colorado-Wyoming Regional Medical Program. Wyoming and the Wyoming Medical Society should be proud of them.

In response to President Nixon's request to the medical profession, I suggest that our State Society begin an energetic drug abuse campaign, similar to that of the Harris County Medical Society of Houston, Texas. Members of the Society could put into effect a total ban on amphetamines and methamphetamines, with the exception of the clearly recognized conditions where these drugs are indicated. These conditions include narcolepsy and selected cases of hyperactive and brain damaged children. This campaign, under the leadership of the medical profession, could be an important program. It will require enthusiastic participation of the profession if it is to succeed. In addition, the doctors should take a look at individual prescribing practices to insure that all prescriptions for drugs with an abuse potential are written with caution. A specific effort should be made to insure that multiple prescriptions are *not* being obtained from different physicians.

Even though I am opposed to additional committees, it would be practical to appoint a Drug Abuse Education Committee, which would work in the areas of (1) professional education, (2) liaison and cooperation with the allied professions, and (3) lay education.

The Medical Society has many problems which we are working on. Under the able leadership of Dr. William Erickson, your new President, and with the help of all the members of the Wyoming Medical Society and Mr. Bob Smith, Executive Secretary, I am sure they will mature successfully during 1972. •

CALL FOR PAPERS

The University of Colorado School of Medicine announces the 11th Annual Cochems Competition, for which a prize of $2,500 will be awarded to the author of the best paper in the field of "Thrombophlebitis and Basic Vascular Problems".

The competition is open to all persons holding the doctorate degree and entries must be received in triplicate, including all charts, illustrations, and photographs, on or before November 15, 1972. For income tax reasons, eligibility is limited to those physicians who are subject to U.S. income tax regulations.

Inquiries regarding the competition and all manuscripts should be submitted to the Dean, School of Medicine, University of Colorado Medical Center, 4200 East Ninth Avenue, Denver, Colorado 80220.

Papers on any aspect of bioengineering are being solicited for the program of the Tenth Annual Rocky Mountain Bioengineering Symposium, which will be held at the University of Colorado on May 7-9, 1973. Topics for the sessions are expected to include Health Care Delivery, Instrumentation, Prostheses, Pattern Recognition, Computers and Patient Monitoring, Grounding and Patient Safety, Ecological Applications and Biomedical Systems Analysis. The deadline for receipt of abstract (200 words) is January 1, 1973, notification of acceptance February 1, and receipt of completed paper March 1. Send all abstracts to Professor Donald E. Dick, Department of Electrical Engineering, University of Colorado, Boulder, Colorado 80302.

Cholecystectomy and the American Indian

A ten-year comparative study

William G. Erickson, MD, Lander, Wyoming

This paper is particularly interesting because of documentation of the serious prevalence of biliary tract disease in the American Indian.

THIS IS A PRELIMINARY report on cholecystectomies done between 1961 and 1971 at Bishop Randall Hospital in Lander, Wyoming. This hospital is one of two small community hospitals of approximately 44 beds serving Fremont County. This county is novel in the fact that within its large ground area of 9,209 square miles, it has a population of only 28,000. Also within this county lies the Wind River Indian Reservation, made up of two Indian tribes, the Shoshone and the Arapahoe, accounting for 4,000 of the county's population. Medical care on the reservation is by the U.S. Public Health Service. Surgical care for the most part is maintained through the two hospitals in Riverton and Lander. During the course of the above period of ten years a total of 165 cholecystectomies were performed at our hospital by four surgeons, and two of these were responsible for 85 per cent of the operations.

Much has been written concerning the incidence of gallbladder disease in the general population. Cholecystitis and cholelithiasis are among the most common of all abdominal disease. The incidence of gall stones in the adult population in the United States ranges by estimate and fact between two and 25 per cent. However, in southwestern Indians an autopsy incidence of 29.9 per cent was noted against an incidence of 11.6 per cent in non-Indians of the same area.[1] In that survey, gallbladder disease was 2.5:1 more common in females. The incidence in Indian females over white females was 2:1 and it was 1.5:1 for Indian males over white males. It has been pointed out that in the age group 55 to 64, 10 per cent men and 20 per cent women have gall stones, among the 15 million people estimated to be carrying gall stones in the United States.[2] Of 165 consecutive cholecystectomies of this series, 88 were performed on Indians and 77 on whites. This shows a 2.2 per cent of the total Indian population undergoing this procedure against .3 per cent of the white population—or seven Indians to one white.

As evidenced by Table 1, there is not only a difference in the average and mean age of the Indian population at time of cholecystectomy as compared to the white, but there is also a significant difference of approximately ten years between the male and the female of the Indian population. More striking is the low median age of the female Indian population, near 30 years, as compared to the high white male median age of 57, some 27 years difference. In most series in this country the average age for cholecystectomy in the general population is between 55 and 64. There were 11 operations performed on Indians 21 years of age and under, all with the diagnosis of chronic cholecystitis and cholelithiasis confirmed by pathologic section. This incidence of 13 per cent is remarkably higher than in other reported series.[8,9] This is compared to the three operations performed on patients 21 and under in the white group, an incidence of four per cent.

TABLE 1

COMPARISON OF AGE GROUPS UNDERGOING CHOLECYSTECTOMIES

1967 — 1971

	Total	FEMALE Average age	Median Age	Oldest	Youngest
Indians	69	33.5	30	73	13
Whites	57	42.9	41	72	13
		MALE			
Indians	19	41	40	69	18
Whites	20	56	57	80	33

A definite family history was found in 42 per cent of Indian males and 32 per cent of Indian females against only 16 per cent of white males and 30 per cent of white females. Parity is frequently mentioned as a factor in the incidence of gallbladder disease. In this study 94.8 per cent of the Indian females over 21 years of age had two pregnancies or more compared with 68 per cent of white females.[3,4,7]

Pathologic examination of the removed gallbladders showed disease in 96 per cent. In those pathologically positive, 94 per cent of Indians had corresponding positive cholecystograms. In each case the x-ray was read as non-visualization or calculi of the gallbladder on single or in most cases double dose of the dye. This was true of only 78 per cent of the cholecystograms on whites, making a total 86.7 per cent positive pathology and x-ray diagnosis. There were 12 patients who had negative x-rays and positive pathology. Several of these patients had their x-rays taken two to three years before surgery. X-rays were not taken in seven operated patients. Four of these had diagnoses made at a previous abdominal surgery.

Six removed gallbladders, four white and two Indian, had no disease by pathologic study. Both Indians and one white had had recent positive diagnoses by x-ray of non-filling. Of the other three white patients, two had interpretation by x-ray of non-calculous gallbladder disease and the other patient had no x-ray taken.

The most common diagnosis was chronic cholecystitis with cholelithiasis (Table 3). The incidence was essentially the same in both Indian and white male populations, but it was much more common in Indian females as compared to white females. Cholelithiasis, as a diagnosis alone, did not vary significantly

TABLE 2

TOTAL CHOLECYSTECTOMIES—165

	Indians		Whites		Total	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Positive pathology	86 of 88	97.7	73 of 77	94.8	159 of 165	96.3
+ pathology + x-ray	81 of 86	94.1	57 of 73	78	138 of 159	86.7
— pathology — x-ray	3 of 86	3.4	9 of 73	12.3	12 of 159	7.5
No x-ray	1 of 88	1.1	6 of 77	7.8	7 of 165	4.2
Dx made pre. surgery	1 of 88	1.1	3 of 77	3.9	4 of 165	2.4
Normal GB removed (all female)	2 of 88	2.2	4 of 77	5.1	6 of 165	3.6
— x-ray — nor. GB	2 of 88	2.2	1 of 77	1.3	3 of 165	1.8

TABLE 3

COMPARISON OF PATHOLOGICAL DIAGNOSES IN THE INDIAN AND WHITE CHOLECYSTECTOMIES

Diagnosis	Indian (88)				White (77)			
	Male (119)		Female (69)		Male (20)		Female (57)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Chronic Cholecystis and Cholelithiasis	13	68.4	50	72.4	12	60	31	54.3
Cholelithiasis Only	3	15.7	7	10.1	2	10	6	10.5
Chronic Cholecystitis Only	3	15.7	6	8.6	4	20	15	26.3
Total	19		63		18		52	

in the two groups. The diagnosis of chronic cholecystitis alone was more common in the white patient, noted especially in white females over Indian females, an incidence of three to one. Only one malignancy, an anaplastic carcinoma of the gallbladder, occurred in this series. Cholesterolosis was diagnosed pathologically on 11 occasions. No white male patient was seen to have this diagnosis and only three white females, all occuring with gallbladder calculi. Six indian females had cholesterolosis, five with calculi and one with it as the only diagnosis. It occurred as a diagnosis with chronic cholecystitis once and with calculi of the gallbladder once in Indian males.

There were four deaths in this group for a mortality rate of 2.3 per cent, slightly above the national rate given as near 1.8 per cent. There were three white deaths and one Indian death. Two autopsies were obtained; one death related directly to the surgery done, and no cause was found for the other. Of the other two deaths one was thought to be due to coronary occlusion and the cause of the other is not known.

Summary

This has been a preliminary report on the comparative incidence of gallbladder disease among the white and American Indian population in Fremont County as studied by a consecutive series of cholecystectomies from 1961 to 1971 in one small community hospital. It tends to support and enhance evidence already documented that the Northern Plains American Indian has a much higher incidence of gallbladder disease than the general population of this country. •

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Choledochoduodenostomy and sphincteroplasty

For calculous biliary tract disease

Francis A. Barrett, MD, Cheyenne, Wyoming

The frequency with which surgeons encounter advanced biliary tract disease in the elderly has led to exploration of new forms of treatment to prevent recurrent obstruction.

BILIARY TRACT DISEASE in the elderly is often advanced, and treatment is fraught with complication. The following case history is typical.

CASE REPORT

H. G., a 79-year-old white male with heart disease and diabetes, was hospitalized in 1964 because of acute cholecystitis and jaundice. A cholecystectomy and exploration of the common bile duct were carried out and stones found in both the gallbladder and common duct. An operative cholangiogram showed poor filling of the distal common duct. For this reason, the duodenum was opened and, although no stones were found in the common duct from below, a sphincterotomy was done. A postoperative T-tube cholangiogram was negative. Wound dehiscence resulted in an incisional hernia.

About two years later, he suddenly developed severe epigastric pain, jaundice, fever, and leukocytosis. At re-operation, the dilated common duct was packed with stones and "sludge". After clearing the duct, a choledochoduodenostomy was done. The patient made a good recovery and lived for two years before death from congestive heart failure.

This story is illustrative of four important considerations in the management of benign calculous biliary tract disease:

1. The retained or recurrent common duct stone remains as a serious impediment to successful outcome in bile duct surgery. Glenn[1] found an incidence of 4.3 per cent residual stones after negative duct exploration, in contrast to a 9.3 per cent incidence after positive duct exploration.

2. Advancing age not only carries with it advancing end-stage biliary tract pathology but also significant coexisting diseases. Both of these factors predispose to increased morbidity and mortality. Glenn[2] studied 5,244 patients following surgery for non-malignant disease of the biliary tract. He reported a mortality rate of 0.5 per cent for those patients under 50 years of age, and a 2.0 per cent death rate for those in the 50 to 64 year range. However, in those patients 65 years and older, the mortality rate rose to 6.2 per cent.

3. Repeat operations carry an ever-increasing risk. Marshall[3] reported the mortality of choledochostomy in 235 cases. When carried out initially with cholecystectomy, the mortality was 5.1 per cent. If the patient had prior cholecystectomy, the mortality was 12.0 per cent. If previous choledochostomy had been done, the mortality for the second common duct exploration rose to 15.4 per cent.

4. Choledochoduodenostomy and transduodenal sphincteroplasty are two obstruction-relieving procedures that yield uniformly good results. These operations promote the goals in benign calculous biliary tract disease: to clear the common duct, allow the passage of residual stones, and prevent the recurrence of new stones.

Historic

Madden[4] has made the point that choledochoduodenostomy has not gained favor in this country even though it has been an established and popular procedure in Europe for many years. Although Riedel[5] and Sprengel[6] were the first to perform this procedure in 1888 and 1890 respectively, it was not until 1913 that Sasse[7] proposed indications for its use and reported ten cases. Interestingly, the procedure of transduodenal sphincteroplasty has had a similiarly slow acceptance. Kocher in 1894[8] described a similar procedure for the removal of impacted stones in the distal common duct. Because of predominant intestinal infections among Japanese and Chinese and subsequent involvement of the sphincter of Oddi, surgical relief of this obstruction by direct attack on the ampulla was popular among their surgeons. Ong,[9] in 1962, reported that he favored transduodenal sphincteroplasty in these pathologic states because of instances of reported common duct obstruction after choledochoduodenostomy. In this country, it was not until 1952 that Jones and Smith[10] popularized and named the procedure "transduodenal sphincteroplasty" and made important distinctions between this procedure and that of sphincterotomy.

Case Material

Thirty-six patients with benign disease of the biliary tract treated during the past five years with one or two obstruction-relieving procedures form the basis of this report. Twenty-six patients had choledochoduodenostomy (Fig. 1) and ten had transduodenal sphincteroplasty (Fig. 2).

Several points concerning the operative technic are important in each instance. The overriding principle of importance in choledochoduodenostomy is the construction of an adequate anastomosis to prevent stricture. It should be 2.5 to 3.0 cm long. Several variations in technic have been used and generally the most effective is a single inverting full layer approximation with non-absorbable suture. The placement of a proximal french catheter or T-tube is of value for proximal decompression and the performance of postoperative cholangiograms.

The essential maneuver in performing transduodenal sphincteroplasty is the placement of the wedge excision of the common duct in an antero-lateral position to avoid injury or occlusion of the pancreatic duct. Additionally, the careful placement of the apical suture to approximate the mucosa of the duct with the duodenum is important to retain needed diameter at this level. Furthermore, the "trough" should be two to three centimeters long to provide adequate decompression.

Indication for Operation

The indications for performing side-side choledochoduodenostomy as enumerated by Hurwitz and Degenshein[11] are the following:

1. Presence of multiple stones in the common duct. 2. Presence of hepatic stones. 3. Finding of thick viscid bile. 4. Ampullary stenosis. 5 Secondary or multiple operations on the common bile duct which is dilated at operation, whether or not stenosis of the ampulla of Vater exists.

The same indications are, in general, those enumerated by Jones[12] et al for transduodenal choledochoduodenostomy (sphincteroplasty). These indications are useful not as strict determinants of a particular type of surgery but more as "guidelines" to hopefully pick and choose the proper case for choledochoduodenostomy or transduodenal sphincteroplasty. Certainly, the vast majority of patients with common duct obstruction due to stones are treated successfully with exploration of the duct, removal of stones, and drainage. We are aiming at the ten per cent or so of patients who are left with residual stones or are likely to form new ones. These are the patients who will benefit most by these obstruction-relieving procedures. One *sine qua non* is the presence of a dilated common duct before either choledochoduodenostomy or transduodenal sphincteroplasty is considered. Additionally, the aged patient is frequently the prime candidate for these procedures for two reasons: first, the elderly are most likely to present with end-stage disease and advanced pathology; and secondly, they cannot afford the luxury of a mistaken treatment and then reoperation. Thus, this procedure is most

classically indicated in the aged jaundiced patient with end-stage disease or recurrent biliary tract pathology (Table 1).

TABLE 1

CHOLEDOCHODUODENOSTOMY AND TRANSDUODENAL SPHINCTEROPLASTY FOR BENIGN DISEASE

Indications for Operation

Any patient with a dilated common duct and ampullary stenosis and/or:

- Multiple common duct stones
- Hepatic stones
- Thick viscid bile

Elderly or poor-risk patients with a dilated common duct and with or without ampullary stenosis and/or:

- Multiple common duct stones
- Hepatic stones
- Thick viscid bile

Repeat operations on a dilated common duct.

Age and Operative Risk

There are three aspects of age and operative risk that are worth emphasizing: (1) With advancing age, the progressive natural history of biliary tract disease leads more and more to complex end-stage problems, i.e., stones, obstruction, infection, stenosis, hepatic stones, etc. (2) As age increases, so does the likelihood of significant coexisting diseases that further complicate the management of the patient. (3) Complications occur more frequently and are more serious in the elderly.

The demand presented by these foreboding aspects of the problem is that when the elderly or poor-risk patient is operated, the surgical procedure should be one that will maximize the chances of success. This is true because the greatest danger faced by these patients is that of re-operation since this presents an almost forbidding mortality rate.

In this group (Table 2), age was first related to the number of postoperative days. The hospital days necessary for recovery increased with each decade, averaging 7.6 days for the 30-60 year group and 19.3 days for those in the 60-90 age group. The number of coexisting diseases became more frequent as we progressed from one age group to another and the complication rate similarly rose. Finally, the complication rate stood at 55 per cent and the mortality rate at seven per cent. All of these figures reflect the seriousness of the disease and the treatment.

The importance of achieving initial success in biliary tract surgery can best be illustrated by reviewing the pathology developed by those patients who experienced

TABLE 2

AGE AND OPERATIVE RISK

Age Group	No. of Cases	Postop. Days	Coexisting Diseases	Complications	Deaths
30's	1	6	None	None	None
40's	3	9	Pancreatitis (1)	None	None
50's	2	8	Heart (1)	None	None
60's	14	16	Heart (4) Pancreatitis (1) Biliary Cirrhosis (1)	Pneumonia (1) Pulmonary Infarct (3) Myocardial Infarct (2) Fistula (1) Phlebitis (1) Hernia (1) Infection (2)	Hepatic Failure (1)
70's	11	15	Biliary Cirrhosis (2) Pancreatitis (3) Heart (3)	Hepatic Failure (1) Fistula (1) Heart Failure (1) Infection (1)	Hepatic Failure (1) Heart Failure (1)
80's	5	27	Diabetes (1) Heart (3) Biliary Cirrhosis (1)	Pneumonia (2) Pulmonary Infarct (1) Infection (1) Myocardial Infarct (1)	None

36 cases, three deaths, seven per cent mortality.
36 cases, 20 complications, 55 per cent complication rate.

TABLE 3

TEN CASES OF PRIOR BILIARY TRACT SURGERY

Prior Surgery	Present Pathology
Cholecystectomy	Jaundice, biliary cirrhosis, jancreatitis, CBD stones
Cholecystectomy	Jaundice, cirrhosis, dilated, adenoma
Cholecystectomy	Dilated duct, stenosis, no stones, no jaundice
Cholecystectomy	Dilated duct, stenosis, no stones, no jaundice
Cholecystectomy, Choledochotomy	Dilated duct, stenosis, no stones, no jaundice
Cholecystectomy, Choledochotomy	Jaundice, dilated duct, stenosis, stones
Cholecystectomy, Choledochotomy	Jaundice, dilated duct, stenosis, stones
Cholecystectomy, Choledochotomy	Jaundice, dilated duct, stenosis, stones
Cholecystectomy, Choledochotomy	Jaundice, dilated duct, stenosis, stones
Cholecystectomy, Choledochotomy	Jaundice, dilated duct, stenosis, stones

failures after initial or repeated surgery. Table 3 presents ten cases of prior surgery and pathology found at repeat operation. The advanced end-stage of biliary tract pathology is apparent.

Selection of Operative Procedure

The advantage of choledochoduodenostomy is the generous anastomosis provided at the maximum diameter of common duct dilatation. In transduodenal sphincteroplasty, the distal common duct is unroofed and not left as a blind stump, the main drawback to choledochoduodenostomy.

There are certain instances in which both choledochoduodenostomy and transduodenal sphincteroplasty have been used in this series. In one instance, C. L., the large duct was explored, no stones found, the duodenum opened and an adenoma resected at the ampulla. A transduodenal sphincteroplasty was carried out in conjunction with the local resection and then a choledochoduodenostomy added as insurance against recurrence of the adenoma.

The second case was that of impacted distal common duct stones and a narrowed indurated distal duct due to chronic pancreatitis. Because of the obvious obstruction, a choledochoduodenostomy was added as a protective bypass.

Aside from these considerations, the choice of procedure will be dictated by the fixation of the distal common duct, pancreas, and duodenum. If there is considerable inflammatory induration and pancreatitis, the duodenum is difficult to bring into the wound, logically suggesting the use of choledochoduodenostomy. On the other hand, if the duodenum is mobile, the distal duct the site of stenosis or impacted stones, then the simplest procedure may be sphincteroplasty.

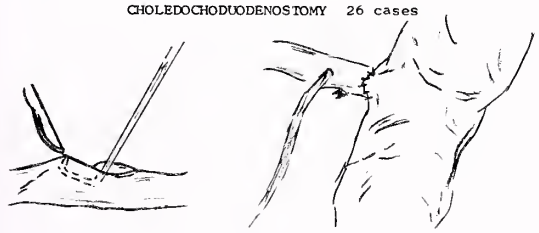

Fig. 1. After placing a French catheter in the proximal common duct, a 3 cm full-layer anastomosis is made with the adjacent duodenum using fine non-absorbable suture.

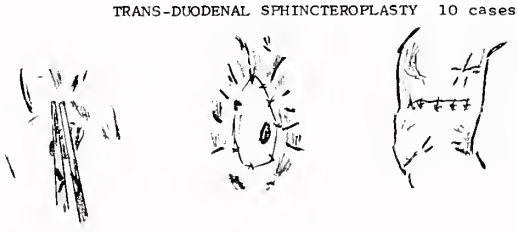

Fig. 2. A wedge is excised from the antero-lateral wall of the common duct and a 2-3 cm trough made with sutures approximating the mucosa of duct to duodenum.

Summary

The vast majority of patients with benign calculous biliary tract disease are treated successfully with cholecystectomy, operative cholangiography, and careful exploration of the common bile duct.

There remains, however, about ten per cent of the patients who present either with the need for repeat bile duct surgery or severe end-stage pathology at the outset.

In these instances, a bypass procedure (choledochoduodenostomy) is useful in clearing the duct and providing an outlet that both allows the passage of residual stones and prevents stone recurrence by relieving ductal obstruction.

Transduodenal sphincteroplasty is a second obstruction-relieving procedure that is of particular value in the surgical treatment of those patients with ampullary stenosis since it allows a direct correction of the distal common duct obstruction, passage of residual stones, and prevention of recurrent stones by decompression.

The risk of biliary tract surgery in the aged is great because of coexisting diseases and advanced end-stage pathology. Choledochoduodenostomy and transduodenal sphincteroplasty are especially recommended in elderly and poor-risk cases to maximize the chances of successful surgery. •

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Improved method of diagnosis in pulmonary disease

John Arthur Jacobey, MD, Denver, Colorado

A safe method of making an earlier diagnosis in chest disease is presented. It results in a greater number of patients being treated for cure while avoiding the endoscope, an instrument designed for use in hollow organs. The method allows use of both hands to carry out a well-exposed, proper surgical dissection among the great vessels, carefully and precisely.

TISSUE DIAGNOSIS OF A mass in the lung seen on x-ray can be obtained by bronchoscopy in about 25 per cent of cases.[1] Of the remaining 75 per cent, about one-half can be diagnosed by good cytologic technics.[1] The search for further diagnostic resources led Daniels[2] to propose scalene fat pad biopsy in 1949. This procedure yielded additional diagnoses in a rather small per cent of patients, ranging from five to 25 per cent, depending on the author. Harken[3] in 1954 carried the dissection behind the clavicle into the superior mediastinum and obtained a positive tissue diagnosis in 32 per cent of 142 cases, all without clinically palpable supraclavicular nodes. These procedures often required two incisions because, contrary to some reports, Rouviere's[4] prodigious work, on close examination of the original, notes that metastases may go to either side of the trachea. This finding agrees with accumulated clinical experience.

Radner[5] in 1955 suggested a midline horizontal incision over the suprasternal notch to obtain bilateral cervical paratracheal nodes. He did not carry the dissection down into the mediastinum so the nodes sampled were almost as distal as the scalene nodes. Carlens[6] in 1959 reported putting a children's esophagoscope down into the mediastinum using Radner's incision and biopsying bilateral paratracheal and carinal nodes by the usual endoscopic wrenching and biting technics. This procedure approached the primary lymph drainage of the lung and achieved optimal diagnostic and prognostic information. However, an instrument expressly designed for the exploration of hollow organs with a strong epithelial lining would seem somewhat less than the ideal to explore the diffuse areolar tissue of the mediastinum in which lie the great arteries and veins and other smaller fragile vessels. The limitation of one's field of vision alone provides difficulty in orientation and should give serious concern when an endoscopic type of biopsy is taken as to what stresses are applied to surrounding structures outside the one- or two-centimeter field of the endoscope. The limitations on the technics of tissue handling using one hand in an endoscopic field are apparent.

A review from the literature of 4,168 cases of superior mediastinal exploration using Carlens's technic called mediastinoscopy (Table 1) reveals an incidence of complications of 3.0 per cent and a mortality of 0.24 per cent. Efforts to reduce unnecessary morbidity and mortality in a diagnostic procedure would seem proper.

TABLE 1

COMPLICATIONS OF MEDIASTINOSCOPY

AUTHOR	MEDIASTINOSCOPY NO. OF CASES	COMPLICATIONS TOTAL	PNEUMOTHORAX	TRANSIENT NERVE PALSY	HEMORRHAGE	TUMOR IN INCISION	OTHER	TEMPERATURE POSTOP	DEATHS
PALVA	171	2			2				2(30)
BERGH	300	13	2	3	3		3	2	2
MAASSEN	139	0							
REYNDERS	250	9	2	3	1	2	1		
AEBERHARD	230	6	2		1	2	1		
NOHL-OSER	100	2			2				1
VAN DER SCHAAR	145	4	1	1	1	1			
CARLENS	685	2	1	1					1
AMER	10	5						5	
PEARSON	67	1	1						
NIELSON	223	40	3	7	2			28	
JEPSEN	556	2	1	1					
WARD	31	4	2	1			1		
KOOP	50	6		1				5	
FLYNN	36	5	1	1	3				1
HARDESTY	11	0							
HOSIE	42	1	1						1
KIRSCHNER	50	6	3		2	1	0		
ELLIOTT	59	2	2						
MACVAUGH	32	1					1		2
PEARSON (EXCL. 27)	365	6	1	3	2				
TRINKLE	155	5			1		3		
ZENKER	290	14	2		4	1	7		
VAHERI	150	4		1	3				
DINEEN	21	1						1	
TOTAL	4168	141 4168 3.0%	25	23	27	7	17	41	10 4168 (0.24%)

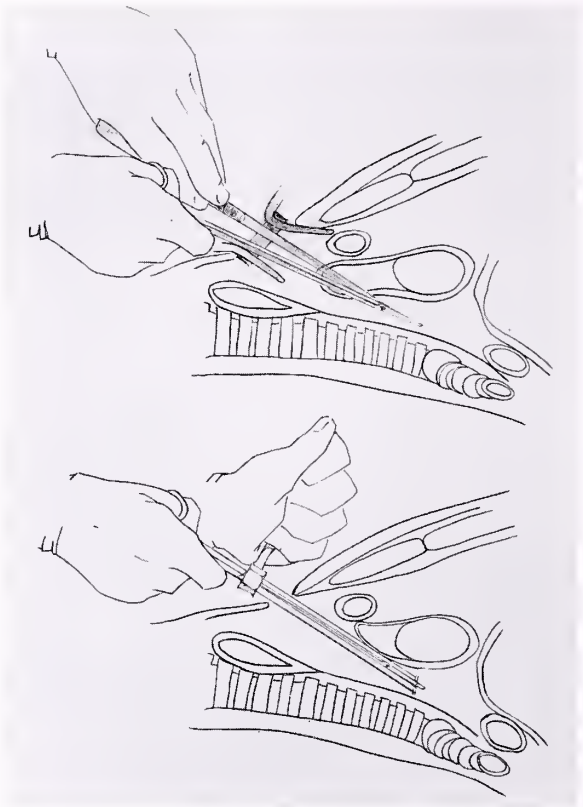

Fig. 1. Schematic comparison of different approaches to exploration of the superior mediastinum: Superior Mediastinotomy (above) and Mediastinoscopy (below).

Method

Concern over the shortcomings of the endoscopic technic in this area led us to view the field without an endoscope. We found that good visualization could be obtained with a properly positioned operating room light, or head lamp if preferred. Radner's horizontal suprasternal incision, six centimeters long, provided satisfactory exposure. Under direct vision dissection is carried through the pretracheal fascia and down the anterior wall of the trachea to the bifurcation, ten to twelve centimeters away. Both sharp and blunt surgical dissecting technics are used. Manual retraction or an appropriately designed self-retaining retractor* aids in the exposure. A schematic comparison of this technic with Carlens's method is shown in Fig. 1. The ease of orientation becomes readily apparent during the first procedure with proper exposure.

This method produces safe exposure in the field shown in Fig. 2. Nodes can carefully be obtained from five areas. The nodes are labeled by location and sent separately to the pathologist since well differentiated carinal or low ipsilateral paratracheal nodes are not a contraindication to resection for cure. Overholt[7] and Borrie[8] have achieved 20 to 30 per cent five-year survivals in their patients with these manifestations. The dissection can be carried over both main stem bronchi avoiding the azygous vein and the recurrent laryngeal nerve, and maintaining pleural continuity without difficulty. Hemostasis is easily achieved with cautery. After irrigation, the cervical fascia and skin are closed. The procedure can be carried out under local or general anesthesia with the patient flat and the neck hyperextended.

*Pilling Company, Fort Washington, Pennsylvania.

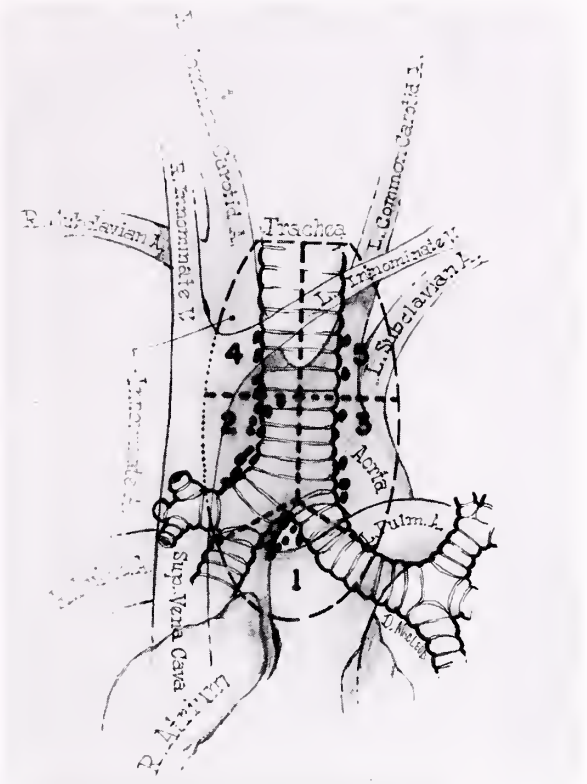

Fig. 2. Anterior view of the operative field of a superior mediastinotomy with the anterior chest wall removed. Note the horizontal incision at the top of the area enclosed by dashes.

Results

Using this technic of superior mediastinotomy, we have had no complications or mortality in a small series of cases. In a recent group of ten consecutive unselected illustrative cases, there was one diagnosis of sarcoidosis. In one patient with suspected vena caval syndrome no pathology was found. Two other examinations were negative and no subsequent pathology was found. Four patients with bronchogenic carcinoma had negative mediastinal nodes, and therefore became operative candidates. One patient had positive well-differentiated nodes in area two and became a candidate for operation. One patient had positive nodes in area four and was given Cobalt radiation. In six patients without diagnosis, a positive tissue diagnosis was made in three, or 50 per cent. This result compares well with a review of 2,327 cases of superior mediastinal exploration using Carlens's technic (Table 2), in which a tissue diagnosis was made in 49 per cent.

TABLE 2
EFFICIENCY OF DIAGNOSIS OF SUPERIOR MEDIASTINAL EXPLORATION

AUTHOR	CASES WITH NO DIAGNOSIS	DIAGNOSIS BY MEDIASTINOSCOPY
PALVA	52	36 (69%)
LOFGREN	35	33 (94%)
BERGH	88	52 (59%)
AEBERHARD	34	26 (76%)
NOHL-OSER	24	17 (71%)
VAN DER SCHAAR	23	13 (57%)
AMER	10	7 (70%)
PEARSON	29	18 (62%)
GIRONES	457	196 (43%)
NIELSON	169	141 (84%)
JEPSEN	231	63 (37%)
WARD	28	14 (50%)
FLYNN	7	2 (29%)
HARDESTY	6	4 (67%)
HOSIE	14	8 (57%)
KIRSCHNER	20	12 (60%)
ELLIOTT	45	33 (73%)
MACVAUGH	13	12 (92%)
TRINKLE	70	33 (47%)
ZENKER	205	98 (48%)
FRIEZE	416	217 (52%)
VAHERI	150	92 (62%)
WINDHEIM	187	97 (52%)
DINEEN	14	7 (50%)
TOTAL	2327	1134 / 2327 (49%)

Discussion

The value of superior mediastinal exploration is established by achievement of positive tissue diagnosis in 50 per cent of patients in whom other methods of diagnosis have not been productive. But closer scrutiny reveals the further value, as in four of our patients, of negative findings in cases of bronchogenic carcinoma. The findings that

the primary lymph drainage does not contain metastases is of much greater prognostic value than negative nodes in the secondary scalene areas in the neck. In addition, the patients with contralateral or high paratracheal metastases will be spared the risk and misery associated with thoracotomy in the few remaining months they have to live.

Table 3 demonstrates a study of 2,657 patients who underwent superior mediastinal exploration by the method of Carlens. Mediastinoscopy produced relative contraindications in 928. Selecting those articles that reported meaningful figures, 991 of 1,998 cases or 50 per cent came to surgery. This compares exactly with the time-tested adage that 50 per cent of all cases of bronchogenic carcinoma will come to surgery. The proof of the value of superior mediastinal exploration specified by the statements in the last paragraph is shown in the fourth column where 781 of the 991 cases that came to surgery were resectable for cure. This figure of 79 per cent is substantially better than the second half of the old adage which says that 50 per cent of the cases that come to surgery will be resectable for cure, using all the older methods of diagnosis.

TABLE 3
RESECTABILITY IN CARCINOMA DETERMINED BY SUPERIOR MEDIASTINAL EXPLORATION

AUTHOR	DIAGNOSIS OF BRONCHOGENIC CARCINOMA	RELATIVE CONTRAINDICATION POSITIVE MEDIASTINOSCOPY	RESECTABLE	CASES NOT OPERATED FOR OTHER REASONS
PALVA	114	54	43/56	4
BERGH	180	59	78/97	24
MAASSEN	139	43		
REYNDERS	122	45	70/77	0
AEBERHARD	148	51		
NOHL-OSER	76	36	20/26	14
VAN DER SCHAAR	122	28	67/72	22
PEARSON	38	12	22/23	3
GIRONES	528	161	131/206	161
NIELSON	54	28		
JEPSEN	325	116	152/179	30
WARD	3	1		
FLYNN	29	7		
HARDESTY	5	3		
HOSIE	28	9	8/15	4
KIRSCHNER	30	18	8/10	2
ELLIOTT	14	5	8/9	0
MACVAUGH	19	9	4/6	4
PEARSON (EXCL. 27)	201	70	119/128	3
TRINKLE	108	37	24/42	29
ZENKER	103	48	26/44	11
WINDHEIM	262	86		
DINEEN	9	2	5/7	0
TOTAL	2657	928 / 2657 (29%)	781 / 991 (79%) / 991 / 1998	307 / 1998 (15%)
		(50%) (CASES OF BRONCHOGENIC CARCINOMA OPERATED)		

Summary

The value of superior mediastinal exploration in the diagnosis and prognosis of chest disease would appear to be substantiated by figures published using the Carlens method of mediastinoscopy. Analysis of 4,168 cases from the literature suggests that not only will more patients have the opportunity for cure by earlier diagnosis, but those incurable patients will be spared the morbidity and mortality of a formal thoracotomy. The complication rate and mortality of this method have been noted. The argument for a safer method has been presented. A method called superior mediastinotomy utilizing accepted surgical technics among the great vessels has been proposed, and early experience and results supporting its use have been presented. •

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SOS

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Botulism from a puncture wound

C. O. Grizzle, MD, Cheyenne, Wyoming

This is a case report of a rare disease and is presented to promote awareness of botulism as a possible cause of paralysis.

THE ACUTE ONSET of coma with bulbar paralysis in a previously well child is a dramatic and urgent affair. The practitioner in a rural area occasionally encounters this situation. The author has experienced several instances of coma with bulbar paralysis, generally when the condition is well developed. The causal pathology has ranged from acute bulbar encephalitis, midbrain trauma associated with fronto-facial fractures with posterior displacement, brain abscess, acute hemorrhage into a glioblastoma multiforme and increased intracranial pressure from presumptive pseudo tumor cerebri.

Because of the urgency of the condition, rapid evaluation of the problem is imperative. However, occasionally, even after extensive testing and multiple and supportive treatments, the clinical events move so rapidly that the patient's course is irreversible. In such instances, the true nature of the disease process is disclosed only through continued investigation and postmortem examination.

The following case report outlines a rather unusual and difficult diagnostic problem of coma with bulbar paralysis from a toxic agent from *Clostridium botulinum,* Type A, resulting from a puncture wound of the foot. Although this is a rare occurrence, it is being reported to promote awareness of this possibility whenever coma problems with bulbar paralysis are encountered:

CASE REPORT

History: On July 5, 1971, a 12-year-old girl from Kimball, Nebraska consulted her physician for a puncture wound of the foot. She had been out in the yard near a pigeon coop and stepped on an upturned board with four nails protruding. All four nails punctured the foot. The wounds were cleaned, and she was given diphtheria-tetanus toxoid and started on oral penicillin (250 mg four times a day). The child had previously been vaccinated against diphtheria-tetanus-pertussis and received a booster in January 1970. She had not received polio vaccine. She was otherwise well, except for some hives which came on after insect bites sustained while visiting several weeks before in Missouri and a papular skin rash sustained a week before while swimming in a local lake. On July 9, her foot appeared to be infected, and she was given one injection of Lincomycin and then started orally on this drug. No specimen was obtained from the wound for culture. On July 10, she was admitted to the local hospital because of diplopia and vertigo. Botulism was considered; however, the patient had not eaten any home-canned foods, and the rest of her family was well.

On admission the patient complained of a sore throat, was noted to be hoarse, but was not dysarthric. Physical examination revealed a mild, bilateral, external otitis, a red throat which was not thought to be excessively dry, and a "blotching, migrating" macular rash involving the trunk and upper extremities. She was able to eat a small amount of food that night, but had some trouble swallowing her secretions. Her vertigo responded to Benadryl which also cleared some hives. There was no muscle rigidity nor trismus and she could touch her chin to her chest. She was not unusually weak, could sit upright, and was without respiratory difficulties. Also, she was oriented, lucid, and aferbrile.

The morning of July 11, she was difficult to arouse, had trouble breathing, and required suctioning of her oropharyngeal secretions. There was some cyanosis about her mouth and extremities, and rales were noted upon auscultation of her chest. Within 30 minutes after receiving 50 mg Benadryl parenterally, her chest began to clear

and she was responsive again. A lumbar puncture was done revealing 590 mm H20 opening pressure. The CSF contained 26 mg total protein, 70 mg sugar, and no cells were found per cu mm. The CSF culture was negative. She had no ill effects from the puncture. Approximately two hours later, she had a cardio-respiratory arrest and was resuscitated. Her pupils became dilated after the arrest and remained so for awhile, then became small again and active to light. No retinal hemorrhages were observed funduscopically. She was given 25 grams Mannitol intravenously as well as SoluCortef followed by 1,850 cc diuresis. She remained in coma and received another infusion of Mannitol six hours later along with 20 mg Decadron. Her temperature rose to 100.4°F rectally following the cardio-respiratory arrest. She was then transferred to the neurologic service in Cheyenne on July 11.

Upon admission to the neurological unit, her temperature was 98.6°F rectally, her pulse rate was 132/minute and respirations were unlabored at 24/minute. She had an endotracheal tube in place. Blood pressure was 120/80 mm Hg. She was in a deep coma. She had involuntary twitches about her mouth bilaterally and had bilaterally synchronous flexion twitches of her wrist, fingers, and feet. A scattered number of red papular, nonpustular, skin erruptions were noted over her trunk and extremities. Her pupils were widely dilated, but no retinal hemorrhages nor papilledema were noted funduscopically. Her neck was flaccid. Her deep tendon reflexes were present and Babinski and Hoffman signs were not elicited. She remained in coma during the night and expired at 7:50 a.m. the following morning with another cardiac arrest. She did not respond to closed chest cardiac massage which was instituted immediately.

Laboratory, x-ray and postmortem studies: Upon admission to the hospital on July 10, her hemoglobin, hematocrit were normal with a white blood count of 6,800 and normal differential. Her BUN was 11 mg, SGOT 10, Serum Sodium 141 Meq/L, Potassium 4.7 Meq/L, Serum Calcium 9.8 mg, and the Phosphorus 4.8 mg. After her cardio-respiratory arrest and resuscitation, these values changed to Serum Sodium 137 Meq/L, Potassium 3.6 Meq/L, Calcium 7.4 mg, and Phosphorus 5.9 mg. Skull x-ray was normal, but the chest x-ray, taken after the cardio-respiratory arrest, revealed extensive infiltration and a small pleural effusion obscuring the right diaphragm. After her second cardio-respiratory arrest and expiration, additional serum and CSF were obtained under sterile conditions. Viral titres for ECCHO, Equine, St. Louis and Venezuela encephalitis were negative. Premortem and postmortem serum for botulism was found to be toxic for mice. Both samples were shown to contain Type A *Clostridium botulinum* toxin with toxin neutralization procedures. At autopsy, minimal cerebral edema was observed without sign of tentorial or cerebellar herniation. Histologically, focal perivascular lymphocytic infiltrate was observed in the brain stem.

Discussion

The toxin of *Clostridium botulinum* has a paralytic effect on the muscles of the extremities and also on those innervated by the cranial nerves. Botulism is a rapidly evolving afebrile illness, often presenting with abdominal pain following the ingestion of contaminated food products. Botulism following a true infection with the organism is, however, very rare, presumably owing to the fact that its spores fail to germinate readily in the tissues.

Symptoms of involvement of the central nervous system appear within 18 to 36 hours after exposure to the toxin. First manifestations include visual disturbances due to loss of accommodation. There is mydriasis, loss of light reflex, and diplopia, followed by difficulty in swallowing, talking, and generalized weakness. The mental condition is said to remain intact until the time of death. Examination of the CSF generally is normal. The widespread paralysis seen in botulism is due to the failure of transmission at the myoneural junction, because of functional block in the terminal nerve fibers which are incapable of releasing acetylcholine in quantities sufficient to evoke a contraction of muscle fibers. The mechanism by which botulism toxin interferes with release of acetylcholine remains unknown. Experimentally, *Crystalline botulinum* toxin, Type A can be fractionate into *alpha* and *beta* components by ion-exchange chromatography using DEAE-cellulose columns. The *alpha* fraction is the neurotoxic one and the *beta* fraction has hemagglutinating effects.

As soon as the diagnosis of botulism is suspected, polyvalent antitoxin should be administered intravenously in a dose of 50,000 to 100,000 units. The antitoxin only neutralizes circulating toxin and has no effect on that which has already temporarily "damaged" the myoneural junction. Other forms of treatment include gastric lavage, enemas to remove residual toxin in those instances of oral ingestion, supporting treatment of

hypotension and shock, and mechanically assisted respiration should be instituted at the first sign of weakness of the respiratory muscles.

This case has been reported in the *Morbidity and Mortality Weekly Report* from the Center for Disease Control, Atlanta, Georgia in December 1971. CDC reports that this is the seventh case of botulism from a wound infection reported in the United States, and the second reported in 1971. Wound infection should be considered as a cause of botulism in cases where foods cannot be incriminated. •

Oxygen toxicity

J. Cedric Jones, MD, Cody, Wyoming

Not many of us think of oxygen as a drug. This is an excellent review of oxygen metabolism and the dangers and safeguards concerning its use.

OXYGEN WAS DISCOVERED by Joseph Priestly in 1774. The first description of damage that was attributed to excessive concentrations of oxygen appeared in 1787.[1] More than 70 years ago, Lorraine Smith noted that birds and small mammals who were exposed to pure oxygen at one atmosphere for several days died with a "pneumonia".[2]

However, it has been only within the past 15 years that extensive knowledge concerning the toxicity of oxygen has been gained. The exact mechanism of its damaging effects remains unknown because so much of oxygen toxicity is irreversible, and thus it is dangerous to submit humans to experimentation. However, it is known that the effects in animals seem similar to those in man, and many experiments have been carried out on small animals, newborn lambs,[3] dogs, and monkeys. The only studies on humans have been done with fully informed volunteers, and in these cases, care has been taken not to go too far.

The first symptoms of oxygen toxicity in volunteers are substernal pain and dry cough, and these appear after breathing 100 per cent oxygen at one atmosphere for from four to 12 hours. On a return to air breathing, the symptoms clear within 24 hours. All results indicate that the toxicity of oxygen is a function of the concentration and the time of exposure.[4]

At an altitude of 5,000 feet, such as we find in much of Wyoming, the average barometric pressure is 630 mm Hg. This is in contrast to 760 mm Hg at sea level. Recent studies have produced anatomic changes in animals at pressures of oxygen as low as 176 mm Hg. This is 30 per cent oxygen at our elevation, and 24.6 per cent at sea level. The substernal pain and cough mentioned before have occurred in as little as four hours of breathing pure oxygen.

The astronauts in our NASA space capsules live in an atmosphere of pure oxygen pressurized to about one-third atmosphere. This is 239 mm Hg oxygen pressure. In the time these men have been aloft, there has

TABLE 1
PRESSURE AND PER CENT OXYGEN

	At Sea Level	At 5,000 feet
Barometric pressure	760 mm Hg.	630 mm Hg.
Water Vapor pressure at 37° C	47	47
Pressure due to gases	713 mm Hg.	583 mm Hg.
Pressure due to oxygen:		
At 20.93%	149 mm Hg.	122 mm Hg.
At 30%	214	175
At 40%	285	233
At 50%	356	292
At 60%	427	350
At 100%	713	583

been no toxicity. Other investigators have concluded that there is no danger of oxygen toxicity even with prolonged exposure at partial pressures of 400 or 425. Thus, the non-toxic level lies somewhere between 200 and 400 mm Hg partial pressure of oxygen.

Just as in all of medicine, other factors influence susceptibility to oxygen exposure. Older persons are more susceptile than younger. Volunteers seem to tolerate less exposure than sick persons, and this may be because the sick are more in need of oxygen. Also, persons who have a tissue hypoxia apparently tolerate a higher alveolar partial pressure of oxygen than those whose tissues are normoxic. Thus, there are individual variations in susceptibility.

The only clear cut disease entity due to oxygen excess is retrolental fibroplasia, and it has become so well known that premature newborns are never submitted to more than 40 per cent oxygen without good cause. Recently, another disease entity has been suggested, bronchopulmonary dysplasia,[5] which is considered to be an extension of the healing process in respiratory distress syndrome of the newborn.

In a recent case report,[6] a 32-year-old myasthenia gravis patient was of necessity ventilated with 80 per cent oxygen for 150 days so that his arterial p02 was maintained at 250 to 399 mm Hg. At that time he began to complain of visual impairment in one eye, and four hours later in the other eye. Oxygen flow was reduced to 60 per cent, and arterial p02 maintained at 120 to 160 mm Hg. Later he improved and was weaned from the ventilator. At last report he was breathing room air spontaneously, but had the ability to recognize only finger movements with one eye. He was blind in the other. This is a first recording of what must be a very rare occurrence in an adult.

Damage due to excessive oxygen is widespread in the body. It causes a disturbance in the chemistry of all cells, and it inhibits the activities of many enzyme systems, especially those containing sulfhydryl groups.[7] The principal effects, however, at one atmosphere pressure or less, are in the pulmonary tissues.[8,9] Here the first results are infiltrative changes with edema formation. Later the changes are proliferative, as is seen with the hyaline membrane formation. Changes also occur in the pulmonary capillaries with increased permeability and the loss of red cells. With thickening of the one-cell layer between alveolar air and blood, it is easy to understand why there is impaired diffusion of oxygen across the membrane. Furthermore, with the establishment of atelectasis in places throughout the lungs, due to blockage by edema fluid, as well as the results of blocked and functionless capillaries, it is understandable that various shunts could be created. In this way there may be lung tissue that is not ventilated but is perfused.

Later the process of oxygen toxicity is one of fibrosis and proliferation. The lungs become stiff. Compliance is reduced, and in the typical patient higher and higher pressures are required to aerate the lungs.

Other studies[10] have shown that mucociliary activity is impaired by moving in either direction from the 21 per cent oxygen contained in atmospheric air. Cilia slow down and the mucous blanket is moved slower in hypoxia than when oxygen content is normal. Likewise, these same functions are impaired as the oxygen content is increased to 100 per cent. The greatest impairment in this respect occurs when the sequence of the experiment goes from the hypoxic state to 100 per

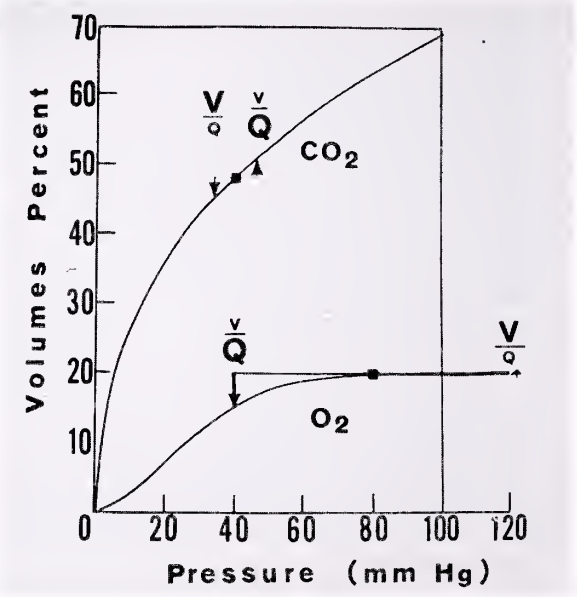

Fig. 1. The carbon dioxide and oxyhemoglobin dissociation curves on the same scale. (From L. J. Henderson, Blood: A Study in General Physiology. *New Haven: Yale University Press, 1928.)*

cent oxygen, and for this reason one authority cautions about placing an hypoxic patient directly on 100 per cent oxygen.[10]

In situations in which the atmospheric pressure is greater than one, as in hyperbaric medicine or deep sea diving, there is danger of damage to the central nervous system, and the functional manifestation is convulsions. Here part of the difficulty may be due to the vasoconstrictor action of oxygen on the cerebral vessels.

Many studies show that the onset of oxygen toxicity is sudden after a variable length of time of exposure. It seems to me that when so many body organs are influenced by the excess of oxygen and influenced so profoundly, it is more likely that the toxicity begins early, and that finally the limit of the individual cells is reached, and they lose their normal function. Perhaps another way to explain what appears to be sudden onset would be to say that the process is reversible up to a certain point and after that it is irreversible, and it is at that point that the disease is manifest.

Anyone who is in need of oxygen therapy is a candidate for toxicity, unless his condition is properly monitored. Those who stand in need of oxygen therapy are postoperative patients, those who have undergone traumatic injuries, and those with various serious illnesses such as myocardial infarcts. An accident victim last summer who had a pneumothorax in addition to his other injuries, had an arterial p02 of 39 mm Hg, as compared to a normal in the vicinity of 70. It is impossible to judge arterial p02 by simply looking at the patient, and it is not entirely possible to judge tissue hypoxia even with arterial p02 determinations.

Methods of determining arterial oxygenation, the pH of blood, and the pC02 content, are becoming more available to the physician, and there probably are now at least eight hospitals in Wyoming where these are available. Arterial blood can be obtained without difficulty from the brachial, the radial or the femoral arteries, and in babies, satisfactory results that simulate arterial findings can be had from a heel stick. Needless to say, if the determinations can be done from that small amount of blood, there is no need to take more than 1 or 1½ ml from an adult's artery.

A typical case of oxygen toxicity was described recently in the *JAMA*.[7] The patient was about 40 years old and had been operated for a malignant tumor. She was alert and responding postoperatively, and then lapsed into unconsciousness. At first she was intubated, but later when it became apparent that she would need prolonged ventilatory help, a tracheostomy was done. Arterial p02 fell far below normal and at first could be increased with larger amounts of oxygen. With time, the tidal volume and the compliance of the lung diminished, so that it took greater and greater pressures to inflate the lungs to the same extent. As these events occurred, repeated determinations of arterial p02 showed them to be diminishing also, so that the per cent of oxygen offered by the ventilator had to be increased until at death she was receiving 100 per cent.

It should be obvious to all of us by now that oxygen is a drug, just as is digitalis, and it should be administered with as much care.[11] One factor that makes oxygen a safer drug than digitalis is that precise measurements of arterial p02 are possible and can be repeated as often as is necessary to adjust the dosage. When oxygen is administered, it ought to be given in a dosage only sufficient to supply an adequate arterial p02. At our altitude, something in the neighborhood of 70 mg Hg is a normal oxygen tension, and no greater flow of oxygen should be used than that which will accomplish that concentration. Perhaps 80 mm Hg would be desirable in a tourist who is not acclimated to the altitude.

Methods of administration are many, but effective methods are few. The old oxygen tent is principally of historical interest. One good method of delivering oxygen to a conscious and cooperative patient is by means of nasal cannula or catheter. The former probably is more desirable from the patient's standpoint, and in a mildly uncooperative patient, the cannula can be taped to the face and head. It will deliver up to 40 per cent oxygen with flows up to 6 1/min. A mask is good also but quite uncomfortable.

As a patient becomes sicker and less cooperative, it may be necessary to use endotracheal intubation or even tracheostomy. Under these circumstances, oxygen can be delivered in precise concentrations up to 100 per cent. One should not depend on ventilator settings as being accurate, but should sample the inspired air and pass it through the oxygen electrode of a gas analysis machine in order to establish accurately the concentration of oxygen. (Gas determinations may be a few millimeter higher than blood readings.)

Perhaps a word of warning regarding the use of oxygen in chronic respiratory disease might be in order, although it is not strictly a matter of oxygen toxicity. The normal respiratory drive is by carbon dioxide, and in chronic lung disease, the respirations become faster and deeper until at high levels of pC02 the respiratory center no longer responds to the hypercarbia. Thereupon, the drive to respiration reverts to oxygen. Now if one provides a grossly elevated p02 by providing a high inspired oxygen tension, the drive is diminished, as is ventilation, and the pC02 continues to climb. Thus a very real danger of carbon dioxide narcosis and death is present. The flow of oxygen in these patients should be no greater than 1½ to 2 1/min unless blood gas determinations indicate a need for more oxygen.

Summary

The purpose of this paper is to remind all of us that we must take a modern and careful look at oxygen. It is only within the past few years that we have recognized the potential for danger to the patient from oxygen. Once we looked upon oxygen almost as a panacea, but this is possible no longer. We must view it as a drug, just as we do digoxin. As with an anesthetic agent, most anesthesiologists feel that one ought to give just enough, and no more. So it is with oxygen. In order to give oxygen properly, it must be monitored, and the facilities to do so are available. The toxic effects of oxygen are a function of time and concentration, in addition to the patient's individual susceptibility, and when blood gas analyses show oxygen to be needed no longer, it should be stopped. •

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Depression: Symptom or syndrome?

Bernice B. Elkin, MD, Casper, Wyoming

Everyone agrees that depression is by far the most common malady seen in medical practice. This perceptive review of depression and the comments of the discussant are very helpful.

FEW TERMS IN PSYCHIATRY are used with as many different meanings as the term *depression.* As a symptom, depression is a prominent feature of such syndromes as schizophrenia and organic brain disease. As a syndrome, depression becomes a well-defined entity which responds to specific treatment. Since most people with the symptom or the syndrome of depression will consult a person other than a psychiatrist first, it is important to distinguish between symptom and syndrome so that proper measures can be taken.

Typically in the adult, depression is manifested by physical symptoms such as poor appetite, weight loss, and early morning awakening. The mental and emotional symptoms are well known. What is of greater importance is that in other age groups depression occurs in less typical forms, or depression itself can be symptomatic of some other psychiatric disorder. It is the purpose of this paper to show how depression appears at different age levels. We might call this, to paraphrase Shakespeare, "The seven ages of depression".

Infancy

Dr. Rene Spitz described a syndrome that he first called "hospitalism" in infants under one year of age who had to be separated from their mothers and remain in foundling homes for several months. These infants, after an initial period of hyperactivity and weeping, would become apathetic, unresponsive to human contact, and anorexic. Their development would be retarded so that the usual milestone accomplishments, such as sitting, standing, and walking either did not occur or would occur much later than normal. If the condition were not corrected, they would lose weight, become ill of intercurrent infection, and die. The syndrome was later renamed "anaclitic depression" and the treatment was two-fold: (1) contact of the infant with its mother and (2) sensory stimulation.[1]

Childhood

Children of school age are classically considered to be in a latency period as far as psychosexual development is concerned. Their emotional disturbances are usually manifest by specific symptoms such as learning disorders, nail biting, tics, and disorders of sleep and eating. Enuresis, particularly in boys with no organic defect, is often a troublesome problem and, until recently, was thought to be treatable only by psychotherapeutic methods. Several papers within the last ten years have described successful treatment of enuresis with anti-depressant medications, suggesting that enuresis is a symptom of depression in the school-age child. Patients given dosages of 25 to 50 mgms of imipramine at bedtime, according to some writers, showed dramatic disappearance of bed-wetting, which returned when medication was stopped. The concept of bed-wetting as a symptom of childhood depression can be postulated empirically, although more scientific proof is necessary.[2]

Adolescence

Adolescents are particularly subject to cyclic variations in mood. This is part of the process of growing up—of wanting to remain dependent on their parents and yet wanting to be independent adults. Severe depression in adolescents takes two main forms, "acting out" and schizophrenia. Faced with home situations which they feel cannot be resolved, adolescent boys will steal cars or other objects, drink excessively, abuse drugs, or run away from home, while adolescent girls most frequently become pregnant as well as abuse drugs and alcohol. This is not to say that all delinquency is due only to depression, but it becomes significant when there is a marked change in a youngster who has reached adolescence.

The symptoms of depression, headaches, sleeplessness, and inability to concentrate are serious signs in an adolescent and the diagnosis of schizophrenia must be considered when a youngster mentions these symptoms. They respond very well, if seen early, to small doses of major tranquilizers plus supportive therapy. There is frequently a difficult home situation, at least in the eyes of the adolescent, and it is important to enlist the aid and understanding of parents as well as the school personnel. Suicide attempts by adolescents are usually a "cry for help" and again the family relationships should be explored to find out why the youngster feels so hopeless, particularly when a boy makes the attempt. Often the normal school routine of the adolescent under treatment need not be interrupted.

Adulthood

When young adults become depressed without any precipitating cause, the diagnosis of schizophrenia must always be considered. Postpartum depression lasting more than several days should suggest the possibility of schizophrenia. Severe headaches, sleeplessness, or bizarre pains may be the only manifestations. These people also respond very well to major tranquilizers.

Late Adulthood

In the normal course of living, external events will occur which cause all individuals to feel sad. These consist of such things as death of a loved one, divorce, major illness, business failure, and other severe blows to self-esteem. If the sadness becomes so prolonged or so exaggerated that it becomes incapacitating, we call this condition neurotic or reactive depression. In all cases, the precipitating factor can be identified and understood. Persons in their late 20's and 30's will usually respond well to short-term therapy with medications such as doxepin (Sinequan) or Valium, plus an opportunity to talk about their feelings.

Maturity

The typical involutional melancholia patient is a woman in her mid or late 40's whose main interests have been centered about her home and rearing her children. At this time of life she finds her attractiveness fading, her children growing up and leaving home, and the opportunity for changing her own situation in life quite remote. She realizes that many of her hopes and dreams will never come true, and she has helpless and hopeless feelings. Physiologic changes occur which help to produce the symptoms of depression previously described. Frequently she expresses thoughts such as "I'd be better off dead" or "Everyone else would be better off if I were dead". Not infrequently, she will take an overdose of pills or make other suicide attempts. Typically, there is no previous history of serious psychiatric disorder. This syndrome is, however, not confined to women, although it is less easily detectable in men. It frequently occurs in males after the loss of a job, a divorce, or physical disability. Involutional melancholia is extremely serious because of the incapacitation, suffering, and possibility of suicide that attends it. It is best treated by large doses of imipramine (tofranil) or amitryptyline (elavil), 200-300 mgms. Hospitalization is frequently advisable and if the patient's condition does not permit waiting the two to four weeks necessary for these drugs to take effect, shock treatments should be given.

The Aged

Older people, as they become aware of their declining faculties, will frequently become depressed. Many of their friends and loved ones are also becoming infirm and dying. It is a period when many losses are sustained and older people may feel hopeless and helpless about their remaining years. They will exhibit all the physiologic symptoms of depression which may be attributed solely to their physical decline. Frequently elderly people will respond well to small doses of major tranquilizers and an opportunity to talk about their feelings.

Extended psychotherapy is not of use, but the chance to speak with a physician for a few hours is most helpful to them. If they are so depressed that they lose contact with reality or think seriously of suicide, six to eight shock treatments will frequently remedy the situation. Shock treatment nowadays is painless and non-fear provoking and is contraindicated only in the presence of brain tumor.

Summary

The various forms of depression as it affects different age groups have been briefly described with the different forms it may take for each. As more is known about the biochemistry and physiology of depression and as more therapeutic agents become available, it is essential to understand the differential diagnosis so that accurate assessment is made and the proper treatment is instituted. •

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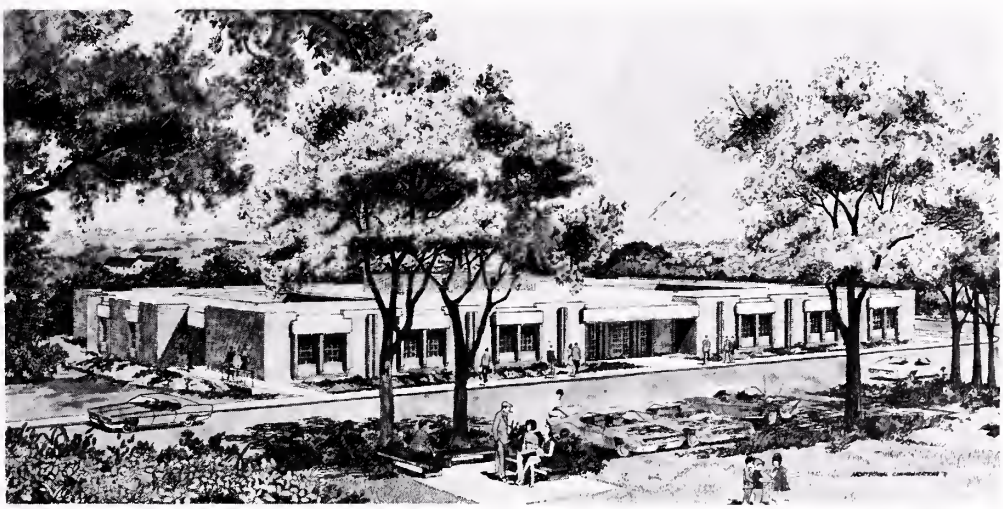

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Depression as seen in family practice*

E. Lee Brubaker, MD, Casper, Wyoming

DR. BERNICE ELKIN has invited me to discuss her paper on depression as seen by a family physician.

Perhaps no other disease has caused more suffering for the human race than depression. It has been estimated that one-half of the patients seen in this country are suffering from a psychiatric illness and the other half who have an organic illness certainly have a psychologic adjustment to make concerning the disease they harbor. Depression constitutes a major portion of psychiatric illness. Each of us sees in our office every day, whether we recognize it or not, a significantly depressed patient. We readily recognize the common cold, and we readily recognize anxiety, but how keen are we in recognizing depression? As family practitioners, we are usually the first to see a patient with depression. Therefore, it is incumbent upon us to be aware of depression and to seek it out and treat it.

How do we recognize the depressed patient? Dr. Elkin has given a differential diagnosis of the various types of depression and some tips in their management. However, I will comment on some patients that we all see. Let's assume that we are busy in the office seeing our usual overload of patients. As we enter the examining room, we encounter the patient who is complaining of a headache or who has various symptoms relating to every aspect of his body that couldn't possibly be organically related. Or, we note a patient who is crying without any apparent cause or suddenly begins to cry as we start to question him. Or there is the patient who has "nerves" and just needs a pill to tide him over. These four "syndromes" should wave a red flag to any physician and suggest to him the diagnosis of depression.

When I started the practice of medicine, I found it upsetting to encounter the above patients. Because I was in a hurry and didn't really have time to listen to their problems, I found it convenient to give them a prescription for Meprobamate or Librium or Valium, telling them they would be better in a few days and sending them on their way. Invariably these patients returned to the office with other aches and pains and a variety of other complaints, thus frustrating me all the more. It seemed that there were no answers to their problems and certainly never enough time to deal with them. I suspected that not only was I unhappy with them, but perhaps they were unhappy with the way their doctor had been unable to help them. Since these unhappy earlier experiences, I have discovered the diagnosis of depression, and it is my hope to share with you a few ideas that have been extremely helpful in the management of these patients.

First of all we must take time to listen. Give the patient a chance to ventilate. Not only does the ventilation help, but it gives the physician a chance to direct the course of his psychologic and physical examination. After the present history has been obtained, three questions are a "must" in evaluating depression: (1) "Are you having any trouble sleeping?" Ninety-eight per cent of patients with depression have a sleeping problem, usually insomnia. These patients are unable to go to sleep when retiring, and they awaken earlier than when they normally arise. (2) "How are you getting along with your spouse and/or family?" Patients who are depressed withdraw from interpersonal relationships,

*A discussion of the paper by Dr. Bernice Elkin entitled "Depression—Symptom or Syndrome".

i.e., from the spouse and from the rest of the family. Often with some prodding, an answer can be obtained from the patient; certainly the family can help in answering this question. (3) "How are you enjoying your work?" Patients who are depressed do not enjoy their daily activity as they normally do. If positive responses to the above questions are obtained, the diagnosis of depression is almost a certainty. No diagnosis of depression should be made without asking a final question, "Have you ever thought of suicide?" or, "Have you ever thought how nice it would be not to awaken in the morning?" A surprising number of these patients will answer that they have contemplated suicide.

Following the present illness history and the three questions above, a cursory physical examination is in order. It takes but a short time to check the head, eyes, ears, nose, and throat, listen to the chest and auscultate the heart. Palpation of the abdomen and other somatic areas can be done rapidly. Not only do the physical examination and relevant tests rule in or rule out organic illness, which would satisfy the examining physician's interest, but it is also extremely reassuring to the patient that the doctor cares enough to investigate the areas of his physical complaint. Once we have developed an awareness of depression, it becomes easier to diagnose the disease by interviewing. However, as physicians, we must not allow the patient to leave the office and state, "I talked to the doctor for a minute. He gave me some pills and didn't even examine me."

Following a proper interview and examination, a diagnosis of depression—if it exists —can be made. Whether we prefer to be specific in our diagnosis as to the type of depression, or whether we lump them all into a general diagnostic area of depression, will reflect the philosophy of the physician who is in attendance. Dr. Elkin has discussed the differential diagnosis of depression. Once the diagnosis of depression has been made, it is our responsibility to treat the condition properly. Elavil, Tofranil, Norpramin, etc. are the drugs that these patients need—*not* Memprobamate, Librium, and Valium. Once we have committed ourselves to the diagnosis and treatment of depression, it is extremely important that we educate the patients and state that (1) they will suffer from the side effects (dryness of mouth, dizziness, etc.) before they benefit from any therapeutic effect of the drug, and (2) therapeutic effects from the drugs are not realized until five to seven days after implementing treatment. It is important that we re-schedule these patients for a follow-up visit in a reasonable time in order to evaluate the benefit they have received from the medication, and in order to adjust the medication dosage.

After a week or two of therapy with antidepressants, the results that can be obtained are most gratifying in nearly all instances. The patient who has headaches or body aches or who is crying or complaining of nerves is a patient who can be helped if we take the time to make the proper diagnosis and treat it. Not only will we as physicians be doing a great service to the patient, but in most instances we will change the common office disaster to the common office triumph—and make a good friend. •

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Precautions: Do periodic serum electrolyte and BUN determinations. Do periodic hematologic studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in postsympathectomy patients. The following may occur: hyperuricemia and gout, reversible nitrogen retention, decreasing alkali reserve with possible metabolic acidosis, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), digitalis intoxication (in hypokalemia). Use cautiously in surgical patients. Concomitant use with antihypertensive agents may result in an additive hypotensive effect.

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ABSTRACT OF MINUTES* HOUSE OF DELEGATES

Wyoming State Medical Society
Sixty-eighth Annual Meeting
August 31 through September 3, 1971
Jackson Lake Lodge
Grand Teton National Park, Wyoming

FIRST SESSION
Tuesday, August 31, 1971

The 68th Annual Meeting of the House of Delegates of the 1971 Wyoming State Medical Society was called to order at Jackson Lake Lodge, Grand Teton National Park, Wyoming, at 3:00 p.m. on Tuesday, August 31, 1971, by Dr. Fenworth M. Downing, President of the Wyoming State Medical Society. The President called for a report of the Credentials Committee and Dr. Paul Yedinak, Chairman, indicated to the President that a quorum was present.

President Downing turned the gavel over to the Speaker of the House, Dr. Goode Cheatham, who introduced Dr. Ted Johnston, Acting Vice Speaker of the House. At this time, visitors to the meeting were introduced.

The memorial list of physicians from Wyoming who died during 1971 was read, after which a moment of silence was observed.

The meeting was again turned over to Dr. Cheatham who, after a brief introductory comment, presented Mrs. Ellie Corbett, President of the Auxiliary to the Wyoming State Medical Society, who reported on the activities of the Woman's Auxiliary. Mrs. G. Prentiss Lee, National Auxiliary President, presented a short report on National Auxiliary activities.

The minutes of the House of Delegates meetings from 1970 were not read but were referred to the Reference Committee on Executive, Governmental Affairs and Economics in toto. Minutes of all of the Council meetings were referred to the Reference Committee on Executive, Governmental Affairs and Economics, with the following exceptions: The December 6, 1970 minutes, items 4c and 7b, were referred to the Reference Committee on Research, Organization and Scientific Program. The special committee report by the Legislative Committee was referred to the Reference Committee on Executive, Governmental Affairs and Economics.

The following is a resolution from the Council on Professional Liability Insurance:

> WHEREAS, professional liability insurance is essential to physicians practicing in the state; and
> WHEREAS, coverage rates have increased severely in the past 24 months; and
> WHEREAS, the committee appointed by the Council has found a group professional liability insurance program can produce many benefits for the physicians of Wyoming; and
> WHEREAS, a survey of the State Society membership shows that a professional liability insurance program is desired by a majority of the membership.
> THEREFORE, the Council recommends to the House of Delegates that it empower the officers of the State Society to negotiate with reputable insurance companies to establish a group professional liability insurance program for Wyoming State Medical Society members as soon as possible.

A companion resolution was also read:

> WHEREAS, malpractice actions are a growing concern to members of the medical profession in Wyoming; and
> WHEREAS, one of the objectives of the State Society is to aid members in their practice and assist them in unjustified liability suits;
> THEREFORE, the Council of the Wyoming State Medical Society recommends to the House of Delegates that the Council, acting on behalf of the Society, be empowered to prepare procedures to assist members (in ways other than financial) when they are threatened with a professional liability action.

These procedures include the formation of a review board, provisions for court testimony and other activities judged necessary by the Council.

Such procedures, to be established and promulgated to the Society's membership no later than July 1, 1972, will be activated only upon request of a physician (or the party claiming injury).

These two cover Item g on December 6, although formulated later, and were referred to the Reference Committee on Executive, Governmental Affairs and Economics. The minutes of February 17, Item 8c, were referred to the Reference Committee on Research, Organization and Scientific Program. The Riverton meeting of May 16, Item 4e, was referred to the Medical Services Reference Committee.

Dr. Cheatham reported on Item 6a, pertaining to the face sheet. He said that the Committee is still working on it, and it has aroused a great deal of national attention. Item 6a was referred to the Reference Committee on Executive, Governmental Affairs and Economics. Items 6b, 1 and 4, as well as Items 7c and 7f, were referred to the Reference Committee on Research, Organization and Scientific Program. Item 7g involves a special committee report:

> WHEREAS, a paramount objective of the Wyoming State Medical Society is to provide benefits to its members; and
> WHEREAS, automobile costs are a substantial expense to individual physicians; and
> WHEREAS, the Council having researched the benefits of a group auto leasing plan; and
> WHEREAS, a committee of the Council has received presentations from reputable leasing companies from within and without the State of Wyoming;
> THEREFORE, the Council recommends to the House of Delegates that the group leasing program presented by Tyrrell Chevrolet Company of Cheyenne and the Chevway leasing system be endorsed by the State Society and information on the program be promulgated to the Society's membership.

Item 9b was referred to the Reference Committee on Research, Organization and Scientific Program.

The following resolution was read and referred to the Reference Committee on Executive, Governmental Affairs and Economics:

*These minutes represent actions taken largely on material from the official packet of the Wyoming State Medical Society. This packet contains the reports that are representative of committee activities and recommendations and form an official part of these minutes.

WHEREAS, the Wyoming State Medical Society may require special assessments on the membership from time to time; and
WHEREAS, members of the Society should have a prominent role in the levying of such assessments;
THEREFORE, the Council of the Wyoming State Medical Society recommends to the House of Delegates that Article IX (Funds, Dues & Expenses) Section 2 of the Society's Constitution, be amended through the addition of the following sentence:
"No assessment shall be imposed upon the members until such assessment is approved by a majority of members voting on the issue in a mail baliot."

Another resolution was read:

WHEREAS, the Wyoming State Medical Society does not presently have a standard membership application blank; and
WHEREAS, the introduction of a standard form of this nature would do much to simplify the business of the county and state societies;
THEREFORE, the Council of the Wyoming State Medical Society recommends to the House of Delegates that the standard application form prepared by the Executive Secretary at the Council's direction, be adopted as the application blank of the Society.

This resolution was accompanied by a sample and referred to the Reference Committee on Research, Organization and Scientific Program.

Another resolution was read:

WHEREAS, Wyoming Health Services Company, Inc., a medical care foundation created by the Wyoming State Medical Society, has shown promise of producing substantial benefits for physicians in Wyoming; and
WHEREAS, the foundation will not receive adequate operating funds from other sources until the initial months of 1972;
THEREFORE, the Council of the Wyoming State Medical Society recommends to the House of Delegates that a loan in the amount of $9,000 be made to Wyoming Health Services as soon as possible.

This resolution was referred to the Reference Committee on Executive, Governmental Affairs and Economics.

The Report of Secretary, Dr. Paul R. Yedinak, was referred to the Reference Committee on Research, Organization and Scientific Program.

The Report of Treasurer, Dr. Donald B. Hunton, was referred to the Reference Committee on Executive, Governmental Affairs and Economics.

Dr. Harlan B. Anderson, Delegate to the AMA, delivered his Report on the 120th Annual Convention of the AMA, which was held in Atlantic City, New Jersey, June 20-24, 1971. The report was referred to the Reference Committee on Research, Organization and Scientific Program.

The Report of the Executive Secretary was referred to all three Reference Committees.

Dr. Johnston asked whether there were other resolutions which should come before the House, and mentioned that two resolutions of commendation from the Laramie County Medical Society had been referred to the Reference Committee on Research, Organization and Scientific Program. No other resolutions were introduced.

There was no old business before the House, and no new business was brought up. The reports of the subcommittees were assigned to the reference committees under which they were listed in the delegates' packets.

Dr. Donald B. Hunton spoke on the Peer Review report which was referred to the Reference Committee on Executive, Governmental Affairs and Economics. He stated that he expected a problem with the Title 19 Program, involving delivery of health care to the state's indigent. The Committee also recommended that the Rocky Mountain Pharmacological fee schedule be adopted for legal fees and court appearances for physicians. The Committee also recommended that Wyoming formulate a relative value scale.

The following reports were referred to the Medical Services Reference Committee: Mental Health Committee; Special Advisory Committee to Children, State Health Department; Liaison Committee; Committee for Perinatal Mortality; Committee on Respiratory Disease; Wyoming Commission for Nursing and Nursing Education.

The reports of the Malpractice Committee, the Utilization and Review Committee, and the Hospital Record Face Sheet Committee were referred to the Reference Committee on Executive, Governmental Affairs and Economics.

The reports of the *Rocky Mountain Medical Journal*, the Advisory Committee for Diabetes Camp, American Services Committee, WICHE Committee, and the Steering Committee on Education, were referred to the Reference Committee on Research, Organization and Scientific Program.

As there was no further business to come before the House, the first meeting of the House of Delegates was recessed at 4:10 p.m. August 31, 1971.

SECOND SESSION
Friday, September 3, 1971

Speaker of the House, Dr. Cheatham, called the House of Delegates to order at 2:00 p.m. on September 3, 1971 and introduced Dr. Wesley Hall, President of the AMA, who delivered an address before the assembly.

Medical Services Report

Dr. Claude O. Grizzle presented the report of the **Medical Services Reference Committee.** The **Subcommittee on Public Health and Safety** portion of the report and the report of the **Emergency Health Services** by Dr. Laurence Greene, Jr., were read and accepted. The report from Dr. Ray Christensen on **Blue Shield** was read, reviewed, and accepted.

The Committee endorsed association with the Wyoming Commission for Nursing and Nursing Education and recommended that the Wyoming State Medical Society maintain contact with that organization through its existing Liaison Committee. This portion of the report was unanimously accepted.

The **Physicians' Assistant Program,** as outlined in the Council minutes of May 16, 1971, portion 4e, was reviewed, and Dr. William Erickson's report concerning the physician's assistant in Dubois was read, reviewed, and accepted. This portion of the report was accepted by unanimous vote.

The **Crippled Children's Division of the Wyoming Department of Health and Social Services** made the following resolution:

WHEREAS, the Crippled Children's Division of the Wyoming Department of Health and Social Services performs its duties in an exemplary manner;
BE IT THEREFORE RESOLVED, that the Wyoming State Medical Society publicly compliment this Department for its performance.

This portion of the report was unanimously accepted.

The following **Industrial Health** resolution was made:

WHEREAS, the Wyoming State Medical Society continues its concern for the labor forces in the State of Wyoming; and
WHEREAS, the Wyoming State Medical Society supports the intent of the industrial hygiene law;
BE IT THEREFORE RESOLVED, that the Governor of the State of Wyoming urge the rapid implementation of this law.

This portion of the report was accepted by unanimous vote of the House, as was the entire report of the **Medical Services Reference Committee.**

The report of the **Executive, Governmental Affairs, and Economics Reference Committee** was given by Dr. Thomas Nicholas. The Committee recommended that the minutes of the last annual meeting be approved as printed in the delegates' packet.

The Committee reviewed the minutes of the Council meeting of September 1, 1970, with exception of Section 4, Subparagraph b. The Committee called to the specific attention of the House the action noted in Section 3, subparagraph a, that the Council recommended participation by the Wyoming State Medical Society in the AMA Professional Liability Program. With this notation, the Committee recommended approval of these minutes and these Council actions as printed.

The Committee reviewed the minutes of the Council of September 4, 1970, with the exception of Section 5, and recommended that they be approved as printed.

The Committee reviewed the minutes of the Council of December 6, 1970, with the exception of Section 4, subparagraph c and Section 7, subparagraph b. The Committee called the attention of the House to reference made to the Medical Aid Room. The Committee gave special recognition to those physicians who helped man this room and recommended that the Legislature Committee and Executive Secretary brief the doctor-of-the-day about legislation affecting the medical community and the position of the Medical Society in each instance.

It was moved that this part of the report be accepted, and the motion was carried by unanimous vote of the House.

A proposal to amend the **Constitution and Bylaws,** Section 7, paragraph f, subparagraph 2. The following resolution was submitted for the consideration of the House of Delegates:

WHEREAS, the Wyoming State Medical Society may require special assessments on the membership from time to time; and
WHEREAS, members of the Society should have a prominent role in the levying of such assessments;
THEREFORE, the Council of the Wyoming State Medical Society recommends to the House of Delegates that Article IX (Funds, Dues and Expenses) Section 2 of the Society's Constitution, be amended through the addition of the following sentence:
"No assessment shall be imposed upon the members until such assessment is approved by a majority of members voting within one month of the issue in a registered mail ballot with return receipt requested."

The Committee recommended adoption of this resolution, which was approved by unanimous vote of the House.

The following resolution was presented in connection with Section 7, paragraph g, in reference to **malpractice.**

WHEREAS, malpractice actions are a growing concern to members of the medical profession in Wyoming; and
WHEREAS, one of the objectives of the State Society is to aid members in their practice and assist them in unjustified liability suits;
THEREFORE, the Council of the Wyoming State Medical Society recommends to the House of Delegates that the Council, acting on behalf of the Society, be empowered to prepare procedures to assist members (in ways other than financial) when they are threatened with a professional liability action.
Included in these procedures would be the formation of a review board, provisions for court testimony and other activities judged as necessary by the Council.
Further, procedures established would be activated only upon request of a physician (or the party claiming injury.)
Such procedures to be established and promulgated to the Society's membership no later than July 1, 1972.

The Committee, after hearing discussion from those who were present and in its own deliberations, objected to this resolution, particularly the phrase "or the party claiming injury". The Committee felt that the Medical Society as presently constituted would be unable to carry out effectively the intent of this resolution, though the Committee sympathized with the intent. It was moved and seconded that this resolution not be passed. Dr. Corbett issued dissenting discussion, stating that the resolution was deserving of greater consideration by the Council as it provided a means of decreasing the number of liability suits in the State.

Dr. Johnston pointed out that an affirmative vote would defeat the Council resolution. A unanimous affirmative vote was cast by the House.

The Committee recommended that the minutes of December 6th and such actions of the Council be approved as printed, except as may be changed by the action upon the two previous resolutions.

The minutes of the meeting of the Council on February 17, 1971, were reviewed with the exception of Section 8, subparagraph c, and the Committee recommended approval of these minutes as printed and actions of the Council.

The Committee reviewed the minutes of the Council meeting on May 16, 1971, with the exception of Section 4, paragraph e; Section 6. paragraph b; Section 7, paragraphs c and f; and Section 9, paragraph b. The Committee recommended approval of the minutes and actions of the Council.

In connection with these actions, a face sheet was developed as recommended in Section 6, paragraph a, and the Committee recommended approval of the face sheet with the following change: Deletion of the wording in the section entitled "Assignment of Insurance Benefits", and substitution of the following words:

I hereby authorize payment directly to the hospital named hereon of the hospital benefits otherwise payable to me but not to exceed the hospital's regular charges for this period of hospital care and to the physician or physicians named hereon of the respective medical care received but not to exceed the physician's or physicians' regular charges for this medical care. I understand I am financially responsible to the hospital and to the physician or physicians for charges not covered by this assignment.

With this change noted, the Committee recommended that the House of Delegates approve the face sheet form, and that the House of Delegates commend the committee who worked on developing this project.

Dr. Paul Yedinak recommended that the resolution be amended to further state:

> We recommend that the Wyoming State Medical Society proceed with copyrighting of this form and withstand any reasonable expenses incurred in the process of accomplishing this.

The motion for copyrighting the face sheet was seconded and approved by unanimous vote of the House.

The primary action was also passed by unanimous vote.

> WHEREAS, a paramount objective of the Wyoming State Medical Society is to provide benefits to its members; and
> WHEREAS, automobile costs are a substantial expense to individual physicians; and
> WHEREAS, the Council having researched the benefits of a group auto leasing plan; and
> WHEREAS, a committee of the Council has received presentations from reputable leasing companies from within and without the State of Wyoming;
> THEREFORE, the Council recommends to the House of Delegates that the group leasing program presented by Tyrrell Chevrolet Company of Cheyenne and the Chevyway leasing system be endorsed by the State Society and information on the program be promulgated to the Society's membership.

The Committee moved for approval of the resolution, which was seconded and passed by the unanimous affirmative vote of the House.

As recommended in Section 7, paragraph h, the following resolution was presented to the House of Delegates for its consideration:

> WHEREAS, professional liability insurance is essential to physicians practicing in the state; and
> WHEREAS, coverage rates have increased severely in the past 24 months; and
> WHEREAS, the Committee appointed by the Council has found a group professional liaiblity insurance program can produce many benefits for the physicians of Wyoming; and
> WHEREAS, a survey of the State Society membership showed that a professional liability insurance program is desired by a majority of the membership;
> THEREFORE, the Council recommends to the House of Delegates that it empower the officers of the State Society to negotiate with reputable insurance companies to establish a group professional liability insurance program for WSMS members as soon as possible.

The Committee recommended approval of the resolution. The motion was seconded and carried by unanimous vote of the House.

The Committee reviewed the action of the Council at its meeting on August 31, 1971, and recommended approval of the budget as amended. Approval of the amended budget was affirmed by unanimous vote.

At the meeting of August 31, the actions and functions of the **Wyoming Health Services Company, Inc.,** were discussed in detail and the following resolution was passed by the Council:

> WHEREAS, Wyoming Health Services Company, Inc., a medical care foundation created by the Wyoming State Medical Society, has shown promise of producing substantial benefits for physicians in Wyoming; and
> WHEREAS, the foundation will not receive adequate operating funds from other sources until the initial months of 1972;
> THEREFORE, the Council of the Wyoming State Medical Society recommends to the House of Delegates that a loan in the amount of $9,000 be made to Wyoming Health Services as soon as practicable.

The Committee recommended continuation of the work of the **Malpractice Committee** and **Ad Hoc Committee on the Hospital Record Face Sheet,** with the exception of the **Fee and Peer Review Committee,** whose functions have been transferred to the Wyoming Health Services Company, Inc. In connection with the report of the **Fee and Peer Review Committee,** the following resolution was presented for consideration:

> WHEREAS, the Wyoming State Medical Society House of Delegates is currently on record as being opposed to all fee schedules and relative value scales; and
> WHEREAS, the Wyoming State Medical Society now favors only a schedule of usual and customary fees; and
> WHEREAS, many physicians in the state at this time find themselves in the position of being unable to negotiate variations from their position; and
> WHEREAS, many physicians of this Society have already gone on record as having adopted one or another relative value scales or fee schedules;
> THEREFORE, BE IT RESOLVED, that the Wyoming State Medical Society revise its present position by ending its policy of favoring only usual and customary fee and endorsing the concept of a relative value scale.
> BE IT FURTHER RESOLVED, that the Wyoming State Medical Society advise the Wyoming Health Services Company, Inc., of the new position, and authorize the corporation to proceed with the adoption of a relative value scale suitable for the needs of this state.

After considerable discussion, the Committee recommended passage of the resolution; the motion was seconded and the resolution passed by unanimous vote.

The Committee recommended that the **Utilization Review Committee** be discontinued and its functions transferred to the **Wyoming Health Services Company, Inc.**

The reports of the **Advisory Committee on Workmen's Compensation,** and the minutes of the **Student Loan Fund Committee** were noted and acceptance of these reports was recommended. The reports of the subcommittees (1) **Advisory to the Woman's Auxiliary,** (2) **Insurance and Retirement, Blue Cross and Blue Shield Trustees,** (3) **Legislation Committee,** (4) **Military and Veterans Affairs Committee,** (5) **Public Relations Committee,** and (6) **State Institutions Committee,** were recommended for acceptance as printed.

The Reference Committee on **Executive, Governmental Affairs and Economics** moved for approval of its entire report; the motion was seconded and discussion followed.

Dr. Yedinak noted that in the minutes of August 31, 1971, of the Scholarship Loan Fund, Inc., $1,800 of a $2,000 loan remained outstanding from a man who had been missing in action in Vietnam for some ten months. Dr. Yedinak moved that this $1,800 be cancelled. The motion was seconded and carried by unanimous vote.

Dr. Nicholas expressed his thanks to Dr. Hunton, Dr. Thomason, and Dr. Ed Kunckel for their help in preparing this report.

Dr. Cheatham recognized Dr. Pat Nolan, Chairman, who gave the report of the **Research, Organization and Scientific Program Reference Committee.**

The Committee recommended approval of the portion of the minutes of the September 1, 1970, Council meeting, Section 4, subsection b, and the

September 4, 1970, Council meeting, Section 5, pertaining to the dates of the annual meeting for the third week in August. Motion was seconded and approved.

The Council minutes of December 6, 1970, Section 4, subsection c, regarding a preceptor program in Wyoming with Colorado medical students, were reviewed, as was Section 7, subsection b in the same minutes, regarding recruitment luncheons. The Council recommended that no such luncheons be undertaken in the foreseeable future, and the Committee recommended that this portion of the minutes be approved. Motion was seconded and carried by unanimous vote.

In the minutes of February 17, 1971, Section 8, subsection c, the Council approved the names of Dr. William Carlson, President of the University of Wyoming, and Dr. L. Floyd Clarke, a long-time friend of the medical profession, for affiliate membership in the Wyoming State Medical Society and the AMA. The Committee moved for approval of this action; the motion was seconded and carried by unanimous vote.

The Committee brought to the attention of the House of Delegates the **Education Committee** discussion in Section B, subsection 1 of the May 16, 1971 Council minutes, proposing a medical education seminar to be jointly sponsored by the State School Board Association, the Wyoming Education Association, and the State Society. The Council approved the concept of the seminar and $500 was appropriated for its operation, if the other potential sponsors supported it to an equal extent. The Committee recommended support and approval of this concept, noting that the first seminar had already been scheduled for Casper on October 8 and 9, 1971. The motion for approval was seconded and carried.

In the same minutes, Section B, subsection 4, the Council moved to endorse and support the training of paramedical personnel within the state, and the Committee recommended that the House approve this action. The motion was seconded and carried.

Section 7, subsection c pertains to the request of the Executive Secretary for a membership application form for the State Society. This form is recommended by the Committee for approval with the following change: "Professional Appointments", on the back of the sheet, was changed to read "Professional Appointment and Board Certification". Also, in connection with this section, a resolution was passed by the Council on August 31, 1971, as follows:

> WHEREAS, the Wyoming State Medical Society does not presently have a standard membership application blank; and
> WHEREAS, the introduction of a standard form of this nature would do much to simplify the business of the county and state societies;
> THEREFORE, the Council of the Wyoming State Medical Society recommends to the House of Delegates that the standard application form with minor changes prepared by the Executive Secretary at the Council's direction, be adopted as the application blank of the Society.

The Committee recommended approval of this resolution with the addition of the following words after "Society": "and request all present members complete the form on a voluntary basis". The resolution was passed as amended.

The Committee recommended approval of Section 7, subsection f regarding the 1971 membership survey.

Two resolutions were sent to the State Society from the Laramie County Medical Society as follows:

> 1. RESOLVED: That the State Medical Society express its appreciation for former services performed by John H. Froyd, M.D., to the Society in the following terms: Dear John: We wish to extend to you our appreciation for all the efforts that you have extended in the past on behalf of the physicians and to make you aware of our best wishes and prayers for your complete recovery, John, the very constructive work that you have done over the years in connection with the Wyoming State Medical Society is most sincerely appreciated. We also know of your excellent efforts in Worland. Again, thank you for your great work and our hopes for your speedy recovery. Signed: President, Wyoming State Medical Society.
> 2. RESOLVED: That the Wyoming State Medical Society express to Brendan Phibbs, M.D., their combined appreciation for the fine work that he has done in the state and wish it couched in the following terms: Dear Brendan: We are writing you to express our appreciation for all of the good works done by you in behalf of the physicians of Wyoming. We are sorry to see you leave the state but want you to know of our best wishes for your continued success. Brendan, we are particularly appreciative of the work that you have done in behalf of rheumatic fever control, the improvement in treatment of heart disease, and the efforts you expended in promoting improvements in occupational health. In addition, we also appreciate your efforts in continuing medical education in the state. Please note that our sincere thanks and best wishes go with you to Arizona. Signed, President, Wyoming State Medical Society.

The Committee moved that these resolutions be accepted. The motion was seconded and carried.

The Committee recommended that the **Report of the Executive Secretary** be approved as read. The motion was seconded and passed by unanimous vote.

The Committee reviewed the report of the **Constitution and Bylaws Subcommittee** presented by Harlan B. Anderson; and the amendments, having been approved by the 1970 House of Delegates, were presented by the Constitution and Bylaws Committee for final approval. They were accepted by unanimous vote.

The Committee received the **Memorial Subcommittee Report** with the addition of the name of Glenn O. Beach, M.D., of Casper, licensed in 1930 and who died August 15, 1971, and recommended approval. Approval was given by unanimous vote.

The Committee recommended approval of both sections of the report of the **Special WICHE Committee.** The motion was seconded and passed.

Approval of the report of the **Steering Committee on Education** was recommended, seconded, and passed.

Dr. Nolan moved for acceptance of the entire report of the **Reference Committee on Research, Organization and Scientific Program,** and a unanimous affirmative vote was cast.

Dr. James Stoetzel gave the **Report of the Grievance Committee.**

Dr. Johnston then introduced the president, **Dr. Fenworth Downing**, who delivered a brief message of thanks and praise.

Dr. Johnston then called on Dr. Bill Erickson for a report of the **Nominating Committee.** The following nominations were made: for President-elect, Dr. Donald Mahnke; for Vice President, Dr. Paul Yedinak; for Secretary, Dr. Don Hunton; for Treasurer, Drs. Pat Nolan, Dave Cook, and Kent Christensen. Dr. Erickson called for other nominations for the uncontested offices; there were none.

It was moved that the nominations be closed and a unanimous ballot cast for Drs. Mahnke, Yedinak, and Hunton. A unanimous affirmative vote was cast for these men.

Dr. Erickson called for other nominations for Treasurer. There were none, and balloting proceeded. The Nominating Committee continued with its report during the balloting. Dr. Goode Cheatham was nominated to be re-elected as Speaker of the House and Dr. Norman Black as Vice Speaker of the House. Other nominations were called for, but none given. Dr. Erickson moved that the nominations be closed and a unanimous ballot cast. The motions were seconded and carried.

The Committee reported that there were no vacancies for Blue Shield and Blue Cross.

Dr. Pat Nolan was elected as Treasurer and the Nominating Committee report was concluded.

Dr. Cheatham introduced the following resolution.

> WHEREAS, the 68th Annual Meeting of the Wyoming State Medical Society, August 31 through September 3, 1971, at Jackson Lake Lodge, accomplished much in both scientific and organizational areas; and
> WHEREAS, the Wyoming State Medical Society House of Delegates is grateful for the ways in which persons and influences outside its own body contributed to the enjoyment and accomplishments of their convention; and
> WHEREAS, the House of Delegates wishes to express its appreciation to all those who helped make the meeting a success;
> BE IT THEREFORE RESOLVED, that the Wyoming State Medical Society give a vote of thanks to all those who contributed to the success of the 68th Annual Convention, including the guest speakers who presented stimulating scientific sessions, the exhibitors and their congenial personnel, the officers and employees of the Grand Teton Lodge Company, and all other persons connected with the meeting.

The motion for approval was made and seconded and unanimous affirmative vote cast in favor of the resolution.

As the report of the Time and Place Committee for the next annual meeting had been given, the motion was made to adjourn. Motion was seconded and unanimous affirmative vote cast.

The meeting of the House of Delegates of the Wyoming State Medical Society was adjourned at 2:15 p.m. on September 3, 1971.

Wyoming Doctors Named to Fellowships

Cheyenne's Dr. Herman S. Parrish, Jr., assistant administrator in the Wyoming Department of Health and Social Services, has been named to fellowship in the American College of Preventive Medicine. Dr. Parish was certified in public health by the American Board of Preventive Medicine.

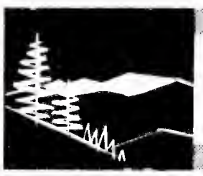
Dr. Joseph P. Murphy, Casper, Wyoming internist, and Dr. Robert T. Cauthorne, chief of the medical service at the VA Center in Cheyenne, have been elected as Fellows in the American College of Physicians.

Cardiac Equipment Donated

The family of the late Dr. M. J. "Jerry" Hannum, Jr., have used funds donated in his memory to purchase cardiac monitoring equipment for use in Campbell County Memorial Hospital in Gillette, Wyoming.

Used in the hospital's surgical suite, the cardioscope monitors a patient's heart both visually and audibly. The equipment is engraved with a plaque reading, "This surgical cardioscope is given in loving memory of M. J. 'Jerry' Hannum, Jr., M.D., our devoted husband, father and friend, that posterity may receive a constantly improving standard of medicine, the cause to which his life was devoted."

Dr. Hannum, who practiced medicine in Gillette for 15 years, died in 1971 following heart surgery. His widow and daughter, Gretchen, live in Sheridan where Mrs. Hannum is continuing her nursing education.



COLORADO

Dr. Pfister Awarded Grant

A research grant of $2,000 has been made by the National Society for the Prevention of Blindness to Dr. Roswell R. Pfister, assistant professor of ophthalmology in the University of Colorado School of Medicine, to pursue studies on the increase in pressure within the eye following alkaline burns to its surface. Dr. Pfister has a special professional interest in corneal and external diseases and conditions of the eye. His research project is entitled "Evaluation of the Hypertensive Response of the Eye to Alkali".

Dr. Silver Wins Award

Dr. Henry K. Silver, professor of pediatrics at the University of Colorado School of Medicine, was a 1972 winner of the Ross Award of the Ambulatory Pediatric Association and delivered the annual George Armstrong Lecture in Washington, D.C., in late May. Dr. Silver spoke on "A Blueprint for Pediatric Health Manpower for the 1970's". A national leader in efforts to improve the health care of children through the training of allied health professionals such as pediatric nurse practitioners and child health associates, Dr. Silver inaugurated these two new approaches to pediatric care at the University of Colorado Medical Center.

Oncology Center Receives Grant

The Oncology Center at the Children's Hospital in Denver has been awarded a two-year grant of $400,000 by the National Cancer Institute, a division of the U.S. Department of Health, Education and Welfare. The grant will make possible establishment of a regional pediatric cancer research center at the Hospital.

Dr. Charlene Holton, director of the Oncology Center and assistant professor of pediatric oncology at the University of Colorado School of Medicine, will head a research team comprised of medical specialists from throughout the Denver area, cancer scientists from the University of Colorado Medical Center, and radiation therapists from Presbyterian Medical Center. The team will study the origins, incidence, and manifestations of cancer in pediatric patients with the hope of developing better means of diagnosis and treatment of the patients.

Former Member Memorialized

A plaque in memory of Dr. Thad P. Sears was presented to the late doctor's widow by Dr. Cyrus W. Anderson, retired physician and former president of the Colorado Medical Society, at the Alumni Banquet of the University of Colorado School of Medicine. Dr. Sears was recognized as "Professor of Medicine, Exemplar in Science, Teaching, Loyalty and Courage".

NEW MEXICO

Dr. Eisenberg Honored

Dr. George Eisenberg was honored for his skill and personality by the graduating seniors at the University of New Mexico School of Medicine. They named him winner of the Khatali Award during the annual Senior Banquet; "khatali" means medicine man in Navajo. The senior proclamation read, "We have chosen Dr. Eisenberg as an individual who is not simply a doctor, but truly is a physician; one of those rare people to whom medicine is an art, not simply a science. This warm, modest, gentle man never treats patients, he cares for people. He establishes a standard which we can strive to attain."

Members Presented with Awards

The University of Colorado Medical Alumni Association presented its traditional Gold Award for distinguished service to Dr. Clayton S. White of Albuquerque, president-director of the Lovelace Foundation for Medical Education and Research. A 50-year award went to Dr. Victor K. Adams, now retired, of Raton, New Mexico.

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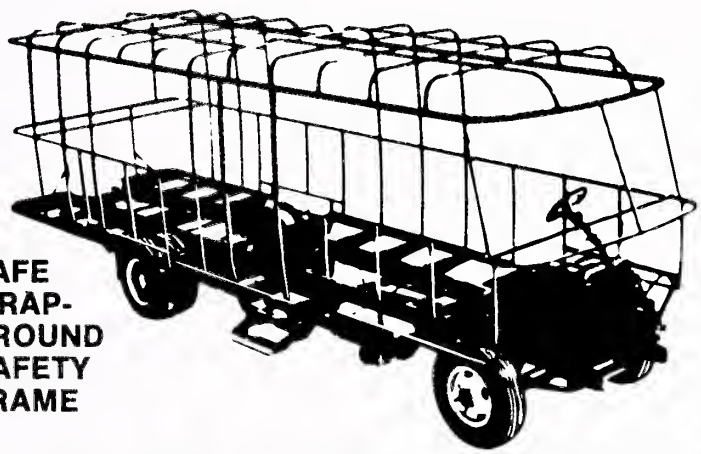

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OBITUARIES

Colorado

Paul A. Draper, MD, a leading neurologist and psychiatrist, died in Colorado Springs on March 31, 1972. Doctor Draper, who was born in Columbus, Indiana on November 18, 1900, received his BA degree from Butler University in 1921 and his MD degree from Indiana University in 1925. In 1930 he came to Pueblo, Colorado, where he lived until 1934, at which time he established his practice in Colorado Springs.

Doctor Draper's professional affiliations included El Paso County Medical Society, Colorado Medical Society, American Medical Association, and American College of Physicians. He also held memberships in many of the specialty organizations, including the Colorado Neuropsychiatric Society, for which he served a term as president in 1941, Central Neuropsychiatric Association, American Academy for Cerebral Palsy, and American Academy of Neurology.

Doctor Draper is survived by his widow, the former Wanetta White whom he married in Colorado Springs on December 17, 1938, two sons, a daughter, and five grandchildren.

Fredrick H. Good, MD, died at his home on May 22, 1972 of a heart attack. Born May 13, 1911 in Holdredge, Nebraska, Doctor Good attended Nebraska public schools until he came to Colorado for undergraduate schooling at the University of Northern Colorado, from which he received his BS degree in 1933. In 1938 he was graduated from the University of Colorado School of Medicine with an MD degree. Doctor Good specialized in surgery until his retirement two years ago due to ill health.

Doctor Good served the community in many capacities. He was on the Board of Trustees of Colorado Medical Service and served as its president for ten years. Upon his resignation from this position in 1959, he received a Certificate of Service from the Colorado Medical Society at its Annual Session. Among the doctor's other contributions to civic affairs was the founding of the junior scouting program of the Boy Scouts of America. This program began in Denver and was later adopted nationally.

Included among Doctor Good's professional affiliations were memberships in the Denver Medical Society, for which he served a term as president, Colorado Medical Society, American Medical Association, American College of Surgeons, International College of Surgeons, Denver Clinical and Pathological Society, Southwestern Surgical Society, and Pan Pacific Surgical Society.

Doctor Good is survived by his widow, the former Winifred Kinney whom he married in 1935, a son and a daughter, and three grandchildren.

William D. Ketter, MD, died in Boulder on May 22, 1972. Doctor Ketter, who was born in Kansas on November 12, 1908, received his BS and MD degrees from Creighton University in 1931 and 1933 respectively. Doctor Ketter came to Boulder 14 years ago and worked first as a county doctor and then at the Wardenberg Health Center at the University of Colorado for ten years. He retired to Raymond, Colorado. Doctor Ketter was a member of the American Medical Association, the Colorado Medical Society, and a life emeritus member of the Boulder County Medical Society.

Doctor Ketter is survived by his wife Margaret, a son and a daughter, and seven grandchildren.

Ralph O. Sherberg, MD, retired Lakewood physician, died May 7, 1972, after a protracted illness. Doctor Sherberg, who was born on December 10, 1905 in Manistee, Michigan, received his BS and MD degrees from Northwestern University. In 1939 Doctor Sherberg came to Denver, taking his internship and residency at Denver General Hospital. He practiced pediatrics in the Denver area until his retirement in 1962.

In addition to belonging to the Colorado Medical Society and the Clear Creek Valley Medical Society, Doctor Sherberg was active in several other professional and specialty societies. He was a member and past president of the Rocky Mountain Pediatric Society, member of the American Society of Pediatrics, and past president of the Medical Review Society.

Surviving Doctor Sherberg are his widow, Genevieve, two sons, and three daughters.

Joseph F. Snedec, MD, died in Pueblo on April 19, 1972. Born in Kansas City, Missouri, on February 8, 1892, Doctor Snedec was educated in private schools in Pueblo and received his MD degree from St. Louis University. After an internship at Alexian Brothers Hospital in St. Louis from 1913-1914, he returned to Pueblo and began

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private practice. That same year on September 4, he was married to Pauline Predovich. Doctor Snedec interrupted his practice for 18 months during World War I to serve in the U.S. Army Medical Corps. In 1920, upon resuming his practice, he helped to organize the Pueblo Medical Group, which was composed entirely of ex-servicemen.

Doctor Snedec specialized in surgery and served as president, staff member, and chief of surgical service of St. Mary's Hospital in Pueblo. He was a member and past president of the Pueblo County Medical Society. In addition Doctor Snedec belonged to the Pueblo County Clinical and Pathological Society, the Colorado Medical Society, and the American Medical Association and was also a fellow of the American College of Surgeons.

Wyoming

Paul Emerson, MD, a long-time member of the Wyoming State Medical Society, died at a Cheyenne hospital May 13 after a long bout with cancer.

The 89-year-old pediatrician graduated from Harvard Medical School in 1911 and began practicing medicine in Boston. He joined the U.S. Army in 1918 and after World War I returned to Boston where he worked in the Children's Hospital, the New England Home for Little Wanderers, and other institutions specializing in treatment of children.

A Cheyenne native, he returned to his home town in 1940 and opened a practice. Doctor Emerson was active in various community affairs. He helped found the University of Wyoming College of Nursing and was a member of the Laramie County Historical Society.

Montana

Dan L. London, MD, a Great Falls ObG specialist, was killed on May 14, 1972, in an automobile accident. Doctor London was born in Burley, Idaho, on September 26, 1935. He received his MD degree in 1960 from the George Washington University School of Medicine and began his medical practice in Great Falls in 1966, following two years as an Air Force physician at Malmstrom Air Force Base. Doctor London was named president of the Montana Deaconess Hospital medical staff in January of this year. He was an active member of the Cascade County Medical Society, the Montana Medical Association, and the American Medical Association.

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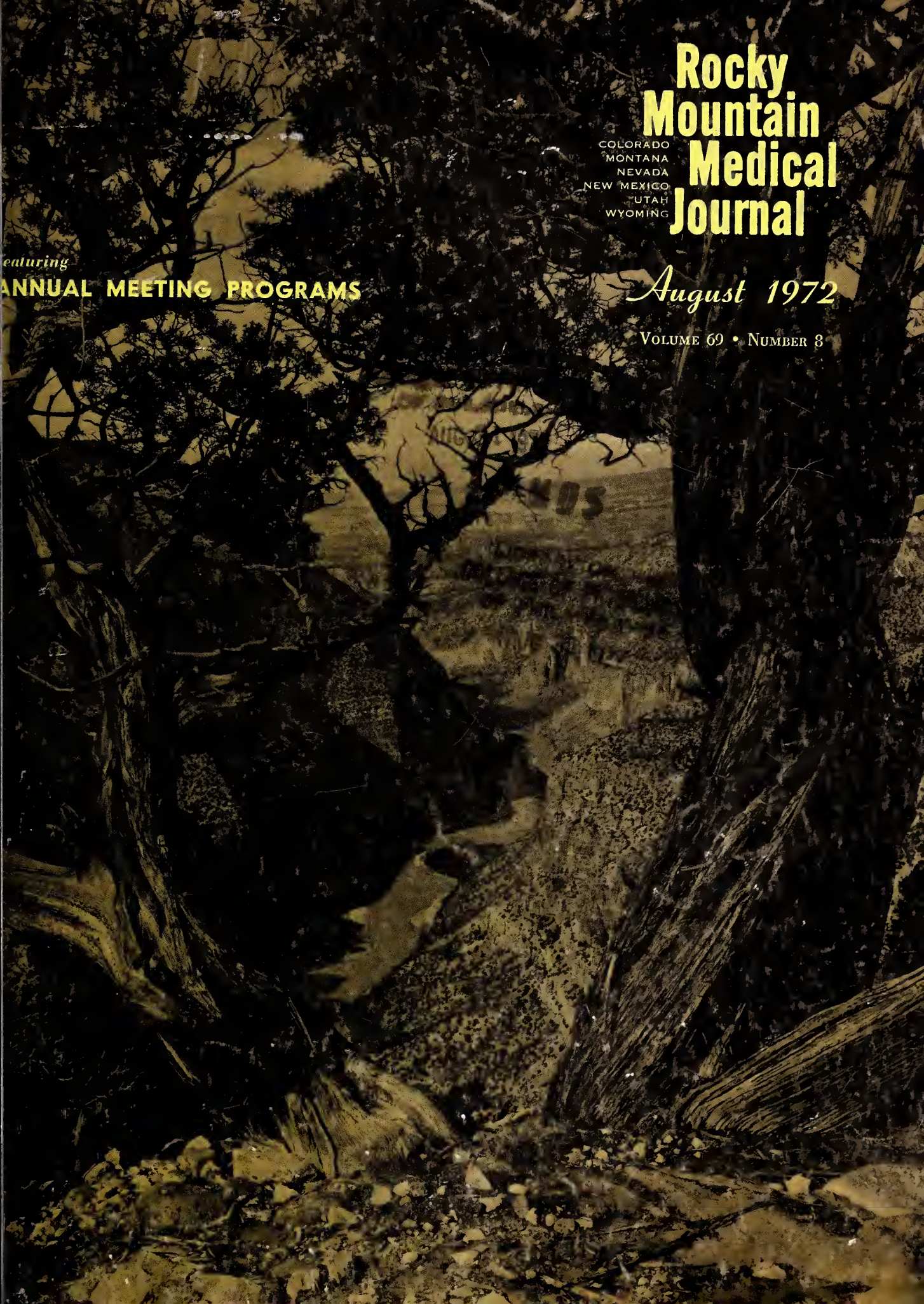

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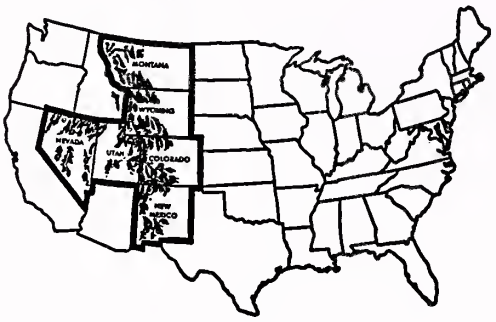

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OUR COVER PHOTO

Dinosaur National Monument in northwestern Colorado encompasses 326 square miles of amazing rock formations, giant monoliths, weird canyons, and gnarled ghost-like trees. The monument area includes deposits of ancient lagoons, lakes, and stream beds in which are imbedded the fossilized remains of dinosaurs, crocodiles, turtles, and other creatures of remote geologic past.

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To the Editor:

I do not make a habit of writing letters in response to articles appearing in the various medical publications that I receive, but feel it is necessary to make a reply to the article "Diagnostic X-ray and Human Pollution" which appeared in the *Rocky Mountain Medical Journal,* Volume 69, Number 6 of June 1972.

May I say first that I feel the article is very appropriate in view of the large number of radiographs that are now and will continue to be taken in physicians' private offices, often without benefit of adequate technical help, adequate equipment, or adequate interpretation. It will, hopefully, give some help to physicians in this category. I have seen many physician's office radiographic work that is equal or superior to some large hospital radiographic work and in this category is included several orthopedic surgeons.

I must, however, make strong objection to Dr. Magill's statement that if the radiograph isn't quite adequate, use it anyway. This is paramount to saying that if a bleeder isn't quite stopped from pumping at the time of surgery just forget it, or if the fracture isn't quite set properly just forget it, or if the laceration isn't too big just forget it, or if the patient has just a little anemia, hematuria, cancer forget it. There is *no* substitute for adequate x-ray examination. There have been too many cases of lesions of high significance being completely overlooked due to a film that was not quite ideal but not repeated.

James T. Shaw, MD, Radiologist
L.D.S. Hospital, Logan, Utah

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To the Editor:

I did read Doctor Shaw's remarks in regards to my article and was pleased that he noted the large number of radiographs taken in physicians' private offices often without benefit of trained personnel. One of the main points of the paper was that it would give such physicians some technical help in making their x-rays better.

In regard to an occasionally unsatisfactory radiograph, I also agree with Doctor Shaw that every possible means should be taken to "run down" something abnormal on the film. The main thing I was trying to point out is the fact that if there are five lumbosacral spine views, four of which give every probability of normal radiographic findings, then a slightly inferior radiograph on the fifth view could be acceptable. This attitude is probably most important in x-rays about the pelvis where repeated attempts at getting a "perfect view" when most of the other views are quite satisfactory, only markedly increase the genetically significant dose described by the United States Public Health Service.

Charles D. Magill, MD

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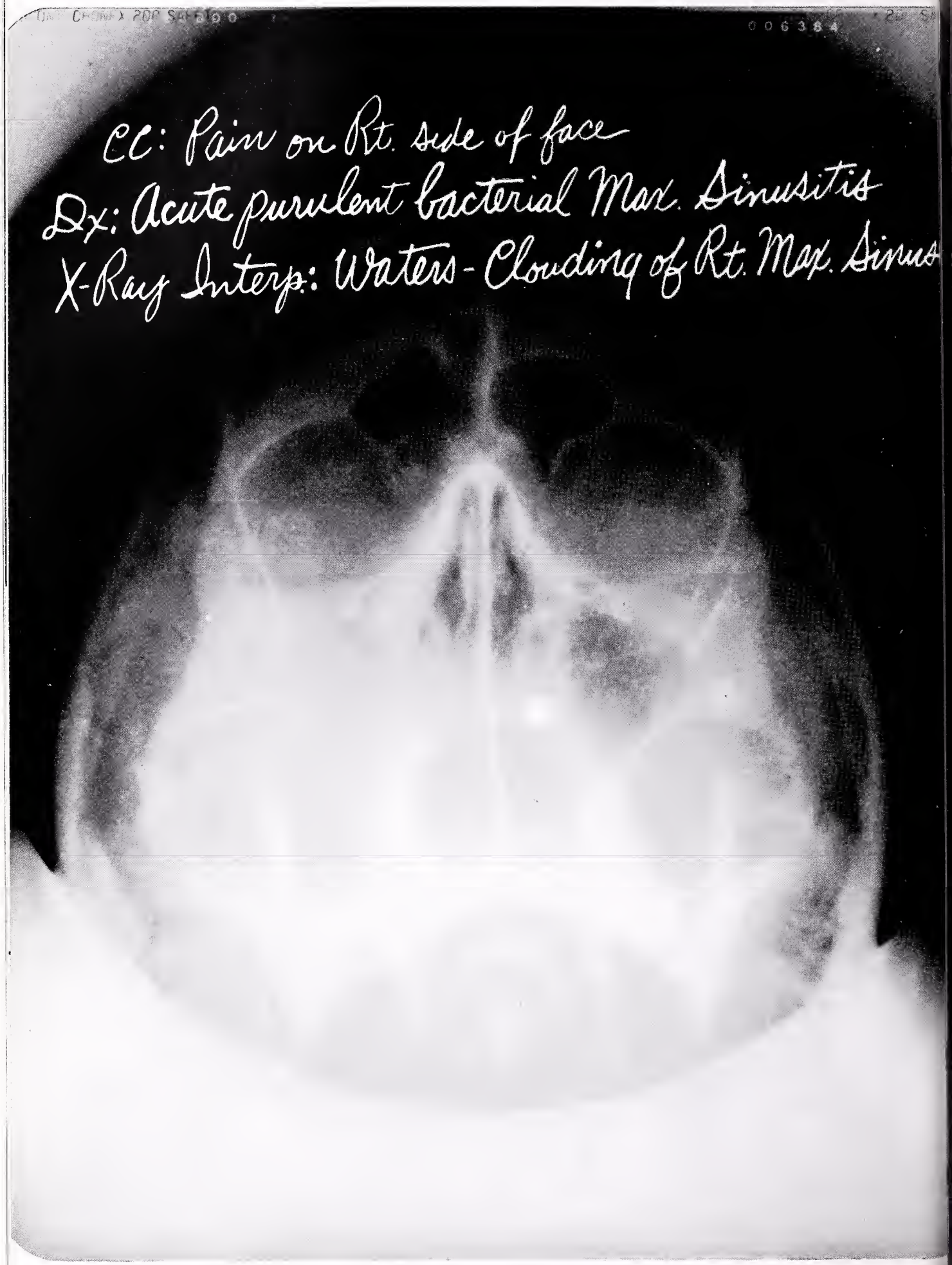

X-ray provided by Manhattan Eye, Ear and Throat Hospital

There are many frustrations in treating acute sinusitis. Cleocin manages most of the bacterial ones.

Inadequate drainage, chronic rhinitis, allergy, exposure to temperature extremes, and other factors can delay recovery from acute sinusitis.

It's helpful to have an antibiotic like Cleocin HCl (clindamycin HCl hydrate, Upjohn) that can take care of most of the gram-positive bacterial problems related to the disease.

As one study* of 52 outpatients showed, acute maxillary sinusitis was associated with staphylococci in 50% of the group, with pneumococci in 25%, and with streptococci and various other organisms (chiefly gram-negative) in the remainder. Significantly, one-half of these staphylococcal infections were resistant to both penicillin and tetracycline (all were sensitive to erythromycin and chloramphenicol). Although not a part of this study, many other clinical and bacteriologic reports[1] have shown that such gram-positive bacteria, which most often are associated with acute sinusitis, are usually susceptible to Cleocin.

Can be taken before, with, or after meals

The total absorption of Cleocin is virtually unaffected by the presence of food in the GI tract.[1] Cleocin thus can be administered as prescribed without interfering with the patient's mealtimes.

Useful in patients hypersensitive to penicillin

Cleocin's chemical structure bears no relationship to penicillin or the cephalosporins. Cleocin therefore may be especially useful in patients with acute sinusitis who report a history of hypersensitivity to these antibiotics. Although hypersensitivity reactions have been uncommon with Cleocin, it should be used cautiously in atopic individuals. Cleocin is not recommended in the lincomycin-sensitive patient.

Please see following page for further prescribing information.

Cleocin® HCl 150 mg capsules

clindamycin HCl hydrate, Upjohn

Reynolds, R. C., et al.: Bull. Johns Hopkins Hosp. 114:269, 1964
Data on file, Medical Research Department, The Upjohn Company

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Side effects: In studies of 1,416 patients involving 92 clinical investigators, side effects were reported in 8.2%.[1] Diarrhea or loose stools were noted in 3% of these cases (one patient with bloody stools). In a few instances, diarrhea lasted several days. A slightly higher incidence of diarrhea or loose stools has been reported by some investigators in subsequent studies.

Toxicity: No irreversible hematologic, renal, dermatologic, or neurologic abnormalities have been reported.[1] Transient leukopenia and eosinophilia have been observed. Elevations of alkaline phosphatase and serum transaminases were observed in a few instances. As with other antibiotics, periodic liver function tests and blood counts should be performed during prolonged therapy.

In acute sinusitis and other upper respiratory infections due to susceptible staphylococci, streptococci, and pneumococci.

Cleocin® HCl

clindamycin HCl hydrate, Upjohn

Each preparation contains:	Clindamycin HCl hydrate equivolent to clindamycin base
150 mg Capsules	150 mg
75 mg Capsules	75 mg

Cleocin (clindamycin, Upjohn) is a new semisynthetic antibiotic produced from the porent compound lincomycin and provides more *in vitro* potency, better oral absorption and fewer gostrointestinol side effects than the parent compound.

Cleocin HCl (clindomycin HCl hydrote) is indicated in infections of the upper and lower respiratory troct, skin and soft tissue, and, adjunctively, dental infections caused by gram-positive organisms which are susceptible to its oction, porticularly streptococci, pneumococci and staphylococci. As with all antibiotics, *in vitro* susceptibility studies should be performed.

CONTRAINDICATIONS: Patients previously found to be hypersensitive to this compound or to lincomycin.

WARNINGS: Safety for use in pregnancy not established. Not indicated in the newborn (infants below 30 days of age).

PRECAUTIONS: Prescribe with caution in atopic individuals. Perfarm periodic liver function tests and blood counts during prolonged therapy. The serum half-life in patients with markedly reduced renal function is approximately twice that in normal patients; hemodialysis and peritoneal dialysis do not effectively remave Cleocin from the blood. Therefore, with severe renal insufficiency, determine serum levels of clindamycin periodically and decrease the dose appropriately. Should overgrowth of nonsusceptible organisms—particularly yeasts—occur, take appropriate clinically indicated measures.

ADVERSE REACTIONS: Generally well tolerated in clinicol efficacy studies. Side effects reported in 8.2% of 1,416 potients. Of the total, 6.9% reported gastrointestinal side effects and 1.3% reported other side effects. Diarrhea or loose stools were reported in 3%. *Gastraintestinal:* Symptoms included obdominal poin, nauseo, vomiting and diorrheo or loose stools. In a few instances, diarrhea lasted for several doys; one case of bloody stools wos reported. *Hemotopoietic:* Tronsient neutropenia (leukopenia) and eosinophilia have been reported; relationship to theropy is unknown. No irreversible hematologic toxicity has been reported. *Skin and Mucous Membranes:* Skin rash and urticoria have been reported infrequently. *Hypersensitivity Reactions:* A few cases of hypersensitivity reaction have been reported. If hypersensitivity occurs, discontinue drug and have available the usual agents (epinephrine, corticosteroids, antihistamines) for emergency treatment. *Liver:* Although no direct relationship of Cleocin HCl (clindamycin HCl hydrate) to liver dysfunction has been noted and significance of such change is unknown, transient abnormalities in liver function tests (elevations of alkaline phosphatase and serum transaminases) have been observed in a few instances. Also, abnormal liver function test values at the beginning af therapy have returned to normal during therapy.

DOSAGE AND ADMINISTRATION: *Adults:* Mild to moderately severe infections—150 to 300 mg every 6 hours. Severe infections—300 to 450 mg every 6 hours.

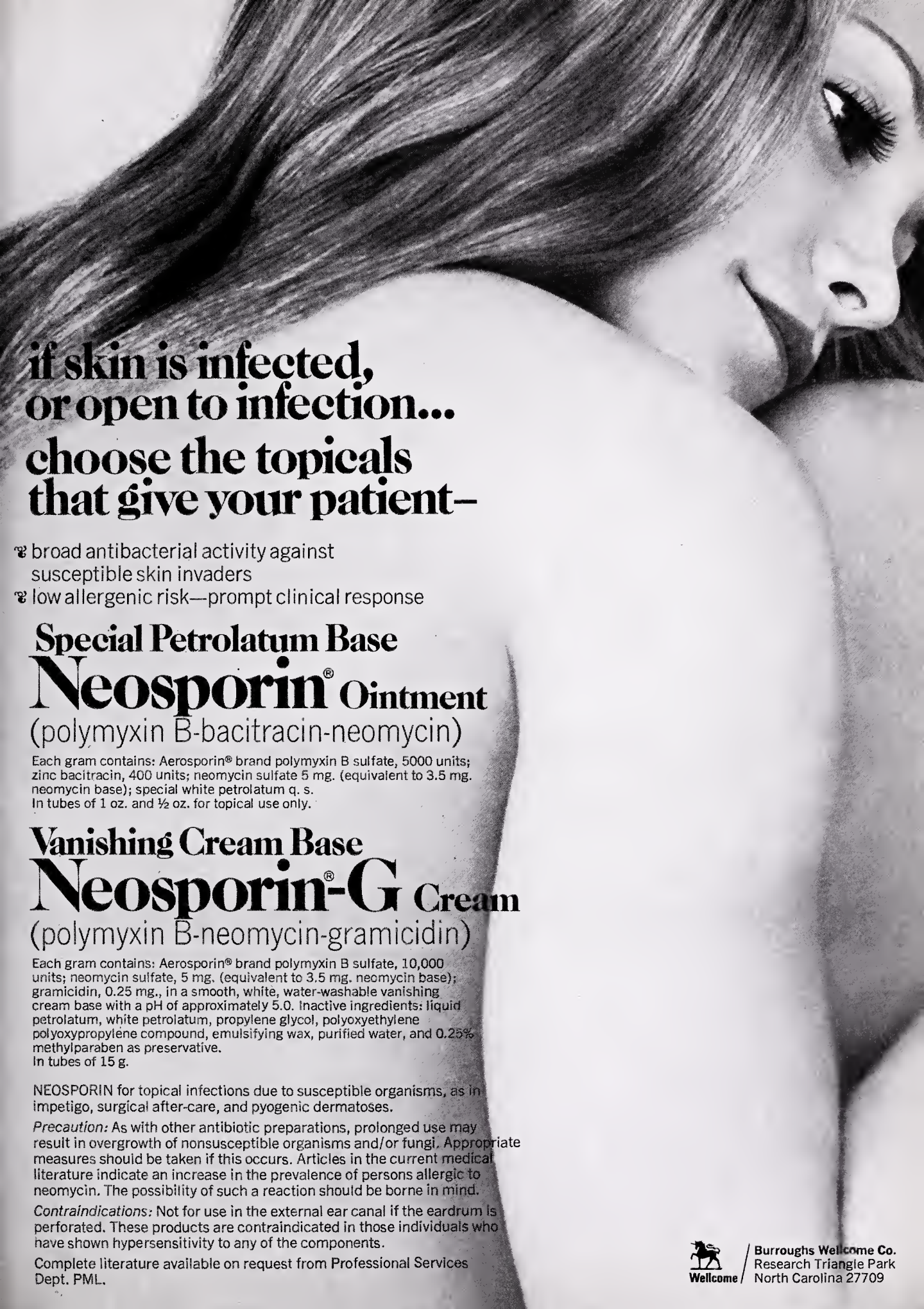
Children: Mild to moderately severe infections—8 to 16 mg/kg/day (4 to 8 mg/lb/day) divided into three or four equal doses. Severe infections—16 to 20 mg/kg/day (8 to 10 mg/lb/day) divided into three or four equal doses.

Note: With β-hemalytic streptococcal infections, treatment should continue for at least 10 days to diminish the likelihood of subsequent rheumatic fever or glomerulonephritis.

SUPPLIED: *150 mg Capsules*—Bottles of 16's and 100's. *75 mg Capsules*—Bottles of 16's and 100's. *Sensitivity Disks*—2 µg. *Sensitivity Powder*—Vials.

For additional product information, see your Upjohn representative or consult package insert. MED 8-4-S (LNU-3) JA71-1565

The Upjohn Company, Kalamazoo, Michigan 49001 **Upjohn**



if skin is infected, or open to infection...

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Each gram contains: Aerosporin® brand polymyxin B sulfate, 5000 units; zinc bacitracin, 400 units; neomycin sulfate 5 mg. (equivalent to 3.5 mg. neomycin base); special white petrolatum q. s.
In tubes of 1 oz. and ½ oz. for topical use only.

Vanishing Cream Base
Neosporin®-G Cream
(polymyxin B-neomycin-gramicidin)

Each gram contains: Aerosporin® brand polymyxin B sulfate, 10,000 units; neomycin sulfate, 5 mg. (equivalent to 3.5 mg. neomycin base); gramicidin, 0.25 mg., in a smooth, white, water-washable vanishing cream base with a pH of approximately 5.0. Inactive ingredients: liquid petrolatum, white petrolatum, propylene glycol, polyoxyethylene polyoxypropylene compound, emulsifying wax, purified water, and 0.25% methylparaben as preservative.
In tubes of 15 g.

NEOSPORIN for topical infections due to susceptible organisms, as in impetigo, surgical after-care, and pyogenic dermatoses.

Precaution: As with other antibiotic preparations, prolonged use may result in overgrowth of nonsusceptible organisms and/or fungi. Appropriate measures should be taken if this occurs. Articles in the current medical literature indicate an increase in the prevalence of persons allergic to neomycin. The possibility of such a reaction should be borne in mind.

Contraindications: Not for use in the external ear canal if the eardrum is perforated. These products are contraindicated in those individuals who have shown hypersensitivity to any of the components.

Complete literature available on request from Professional Services Dept. PML.

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North Carolina 27709

Insights into the ulcer-prone

This man governs an empire—the section of beach that he combs—and he may have much in common with a business tycoon. Both may be ulcer-prone for similar reasons: both may be difficult to please—both may be demanding, especially of themselves. While there are many types of duodenal ulcer patients, it has been noted* that, characteristically, these individuals are not easily satisfied.

Measuring oneself against one's own expectations or against those of society may be equally trying—equally anxiety-provoking. It is hard to win when both success and failure can demand a similar price.

If the ulcer patient were to modify his expectations, he would experience less anxiety—and perhaps fewer ulcer attacks. In most cases, this would mean altering the entire constellation of psychological attitudes. Many are unwilling to do so, and many are unable. But while the patient is trying to make his best adjustment to his ulcer, he often needs therapeutic relief for both the undue anxiety with which he may be plagued and the hypersecretion and hypermotility that cause pain and spasm.

*Palmer, E. D.: *Clinical Gastroenterology*, ed. 2, New York, Hoeber Medical Division, Harper & Row, 1963, p. 206.

Captain of Industry

Librax can relieve excessive anxiety, thereby helping to reduce pain and spasm

Since duodenal ulcer is frequently associated with excessive anxiety and tension, therapy logically demands relief from both the psychic and the somatic discomfort. Librax can help provide this dual relief. Only Librax provides in a single capsule both the antianxiety action of Librium® (chlordiazepoxide HCl) and the antisecretory/antispasmodic action of Quarzan® (clidinium Br). With Librax, the patient usually tends to react less strongly to anxiety-provoking situations, and hypersecretion and hypermotility are also reduced. A reduction of associated pain and spasm can also be expected, and often ulcer attacks become fewer and farther between!

Up to 8 capsules daily in divided doses

Optimum therapeutic response can be achieved with individualization of dosage—within the range of 1 or 2 capsules, 3 or 4 times daily. Many patients will respond well to 1 capsule *t.i.d.* and 2 at bedtime. Librax can often be relied on both to help in managing the acute attack and to help the patient maintain gains in therapy.

Librax: Initial therapy, Rx #35, Sig: cap. $\frac{1}{1}$ *t.i.d. a.c.* and $\frac{2}{1}$ *h.s.*

Follow-up therapy, Rx #100, Sig: cap. $\frac{1}{1}$ *t.i.d. a.c.* and $\frac{2}{1}$ *h.s.*

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Symptomatic relief of hypersecretion, hypermotility and anxiety and tension states associated with organic or functional gastrointestinal disorders; and as adjunctive therapy in the management of peptic ulcer, gastritis, duodenitis, irritable bowel syndrome, spastic colitis, and mild ulcerative colitis.

Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (e.g., excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

Dosage: Individualize for maximum beneficial effects. Usual maintenance dose is 1 or 2 capsules, 3 or 4 times a day, before meals and at bedtime. Geriatric patients—see Precautions.

How Supplied: Librax® Capsules, each containing 5 mg chlordiazepoxide hydrochloride (Librium®) and 2.5 mg clidinium bromide (Quarzan®)—bottles of 100 and 500.

for the anxiety-linked symptoms of duodenal ulcer

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Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

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102nd Annual Session

COLORADO MEDICAL SOCIETY

Broadmoor Hotel, Colorado Springs, Colorado

September 20-23, 1972

WEDNESDAY, September 20

8:00 a.m. ORIENTATION COURSE

12:00 noon REGISTRATION

1:00 p.m. HOUSE OF DELEGATES, FIRST MEETING

3:00 p.m. REFERENCE COMMITTEE MEETINGS

THURSDAY, September 21

7:00 a.m. REGISTRATION and Exhibits Open

GENERAL SESSION

Presiding: *Richard E. Holman, MD*

8:55 a.m. INTRODUCTION AND WELCOME
Kenneth A. Platt, MD
President, Colorado Medical Society

9:00 a.m. **The Good Ship Hope**
William B. Walsh, MD
Founder and President of
Project Hope, Washington, D.C.

10:00 a.m. INTERMISSION

10:30 a.m. **PANEL: Good Ship Hope**
Moderator:
Jan F. Baumgardner, MD

Panelists:
Will P. Pirky, MD, Peru
Robert K. Brown, MD
Tunisia, North Africa
James B. Dumm, MD
Cartagena, Colombia
Ruth M. Gouge, MD
Cartagena, Colombia
Lynwood M. Hoople, MD, Peru

SCIENTIFIC SESSION

Presiding: *Jerry K. Aikawa, MD*

1:30 p.m. **Ruptured Abdominal Aortic Aneurysm**
W. Gerald Rainer, MD, and
Theodore R. Sadler, Jr., MD

1:50 p.m. **Diabetic Retinopathy**
William E. Jackson, MD

2:10 p.m. **Neonatal Small Left Colon Syndrome**
William S. Davis, MD
Director of Radiology
Children's Hospital, Denver

2:30 p.m. **The Population Problem**
Tibor Engel, MD

2:50 p.m. **Female Sterilization**
Horace E. Thompson, MD
Albert D. Haverkamp, MD
Vera E. Drose, BA

3:10 p.m. COFFEE BREAK

3:40 p.m. **Hand Injuries**
Robert E. Horner, MD

4:00 p.m. **Using the Nembutal Test in Diagnosing Drug Dependency**
Robert B. Perry, MD

4:20 p.m. **Three Year Clinical Experience With Cold Sensitivity Disorders**
Alan A. Wanderer, MD

5:00 p.m. RECEPTION

6:30 p.m. COCKTAILS

7:00 p.m. ANNUAL BANQUET

FRIDAY, September 22

7:00 a.m. REGISTRATION

GENERAL SESSION

Presiding: *William E. de Alva, MD*

9:00 a.m. **LASL Programs of Interest to the Medical Profession**
H. M. Agnew, PhD
Director of Los Alamos Scientific Laboratory
Los Alamos, New Mexico

10:00 a.m. INTERMISSION to visit scientific and technical exhibits

10:30 a.m. LANNING E. LIKES CANCER LECTURER
Infectious Complications of Neoplastic Disease
Donald Armstrong, MD
Associate Professor
Sloan-Kettering Institute
Division of Medical Research

1:00 p.m. HOUSE OF DELEGATES, SECOND MEETING

SATURDAY, September 23

7:30 a.m. REGISTRATION and Exhibits Open

8:30 a.m. HOUSE OF DELEGATES, THIRD MEETING

GENERAL SESSION

Presiding: *Thomas W. Moffatt, MD*

9:30 a.m. **What About My Wrinkles, Doctor?**
Harold O. Perry, MD
Department of Dermatology
Mayo Clinic
Rochester, Minnesota

10:30 a.m. INTERMISSION

11:30 a.m. **PANEL: What About My Wrinkles, Doctor?**
Moderator:
Thomas W. Moffatt, MD
Panelists:
W. Mitchell Sams, MD
Chairman of the Department and Professor of Dermatology
University of Colorado Medical Center
Harry Sobel, PhD
Professor of Gerontology
Stanford University
Guinter Kahn, MD
Department of Dermatology
University of Colorado Medical Center
F. A. Garcia, MD
Associate Clinical Professor
Department of Surgery
University of Colorado Medical Center

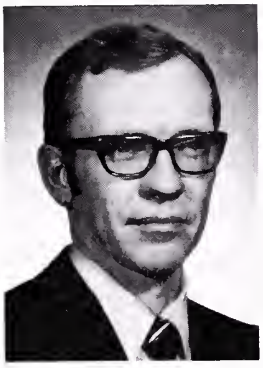
SPEAKERS

William B. Walsh, MD
Founder and President
of Project Hope

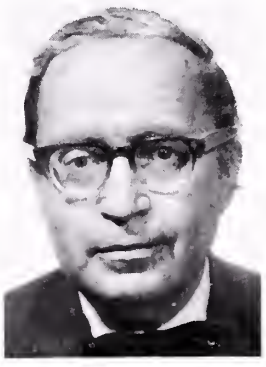
Harold O. Perry, MD
Department of Dermatology
Mayo Clinic, Rochester,
Minnesota

H. M. Agnew, MD
Director, Los Alamos
Scientific Laboratory
Los Alamos, New Mexico

Donald Armstrong, MD
Associate Professor
Sloan-Kettering Institute
Division of Practical Research



W. Mitchell Sams, MD
Professor and Chairman
Department of Dermatology
University of Colorado
Medical Center



Harry Sobel, PhD
Professor of Gerontology
Stanford University

94th Annual Meeting
MONTANA MEDICAL ASSOCIATION

Florence Motor Inn, Missoula, Montana

September 14-15, 1972

All physicians are cordially invited and are most welcome to attend this Annual Meeting. Again this year there will be no registration fee.

Thursday, September 14

9:30 a.m. HOUSE OF DELEGATES, FIRST SESSION

All committee reports, resolutions, and other business of this Association will be introduced and referred to the appropriate reference committee for study.

11:30 a.m. HOUSE OF DELEGATES, SECOND SESSION

Election of officers for the 1972-73 administrative year will be held. In addition, a special presidential address will be presented by John Pfaff, Jr., MD.

1:30 p.m. REFERENCE COMMITTEE MEETINGS

evening ANNUAL DINNER, MONTANA MEDICAL POLITICAL ACTION COMMITTEE

Guest Speaker:
Henry S. "Hank" Hibbard
Candidate, U.S. Senate

Friday, September 15

SCIENTIFIC SESSIONS

The following guest clinicians will speak during the Scientific Sessions of this Association:

James R. Burton, MD
Orthopedic Surgery
Western Montana Clinic
Missoula, Montana

C. Ronald Koons, MD
Internal Medicine-Radiotherapy
Mountain State Tumor Institute
Boise, Idaho

James K. Luce, MD
Internal Medicine-Chemotherapy
Mountain States Tumor Institute
Boise, Idaho

Patrick E. Watson, MD
Dermatology
Western Montana Clinic
Missoula, Montana

J. Jerome Wildgen, MD
Family Practice and President
American Academy of Family Practice
Kalispell, Montana

evening ANNUAL RECEPTION AND BANQUET

A program of musical entertainment will be presented during the banquet. A fellowship honoring past presidents of this Assoication will follow.

Saturday, September 16

8:30 a.m. HOUSE OF DELEGATES, THIRD SESSION

The report of each Reference Committee will be presented and its recommendations on the reports and resolutions will be officially acted upon.

A feasibility study on the possibility of establishing a foundation for medical care in this state was approved by the House at its interim meeting earlier this year. This completed study will be presented to the members of the House for their deliberation during this Annual Meeting.

Again, the officers and members of the Montana Medical Association extend a very cordial invitation to all physicians in the Rocky Mountain area to attend the 94th Annual Meeting in Missoula. You may be assured a most cordial welcome.

John Pfaff, Jr., MD
President

Robert P. Yost, MD
Secretary-Treasurer

77th Annual Scientific Sessions
UTAH STATE MEDICAL ASSOCIATION

Salt Palace Convention Center, Salt Lake City, Utah

September 13-15, 1972

Wednesday, September 13

12:15 p.m.—REGISTRATION

LUNCHEON BUFFET

1:00 p.m.—Health Care in Utah as it Relates to Government

Luncheon Speaker: *The Honorable Calvin L. Rampton*
Governor of Utah
Salt Lake City, Utah

2:00 p.m.—WELCOMING REMARKS

Merrill C. Daines, MD, President
Utah State Medical Association
Logan, Utah

2:05 p.m.—Epilepsy—Prevention of Onset, Recurrences, and Consequences

Madison H. Thomas, MD
Salt Lake City, Utah

2:15 p.m.—Skin Autographs Versus Homographs Versus Heterographs

Earl Z. Brown, MD
Chief of Plastic Surgery
Veterans Administration Hospital
Salt Lake City, Utah

Clifford C. Snyder, MD
Chief of Surgery
Veterans Administration Hospital
Salt Lake City, Utah

2:30 p.m.—Streptokinase In Clinical Practice

Alfred V. Persson, MD
Clinical Instructor of Surgery
University of Texas Southwestern Medical School
Dallas, Texas

3:00 p.m.—Antibiotic Treatment of Eye Infections

Robert P. Burns, MD
Associate Professor of Ophthalmology
University of Oregon Medical School
Portland, Oregon

3:45 p.m.—Symposium on Utah Medex Program

Moderator: *F. David Fisher, MD*
Assistant Professor of Community and Family Medicine
University of Utah College of Medicine
Salt Lake City, Utah

Panelists:

General Background and Progress Report

C. Hilmon Castle, MD, Professor and Chairman
Department of Community and Family Medicine
University of Utah College of Medicine
Salt Lake City, Utah

Academic Phase of Medex Training Program

F. David Fisher, MD, Assistant Professor
Department of Community and Family Medicine
University of Utah College of Medicine
Salt Lake City, Utah

Field Training Phase

Joe Amano, MD
Clearfield, Utah

Effect of Medex on Practice

G. Frank Madsen, MD
Roosevelt, Utah

Problems, Reactions, and Resolutions

Medex John Simmons
Roosevelt, Utah

Evening—USMA PRESIDENT'S BANQUET
Hotel Utah, Lafayette Ballroom

Honoring: *Merrill C. Daines, MD*, President
Utah State Medical Association
Logan, Utah

William R. Christensen, MD, President-Elect
Utah State Medical Association
Granger, Utah

Thursday, September 14

8:30 a.m.—REGISTRATION

9:00 a.m.—Current Concepts in the Diagnosis and Management of Breast Cancer

Robert W. McDivitt, MD, Chairman
Department of Surgical Pathology
University of Utah College of Medicine
Salt Lake City, Utah

9:30 a.m.—Workup of the Hypertensive Patient

Walter M. Kirkendall, MD, Professor and Director
Program in Internal Medicine
University of Texas Medical School
Houston, Texas

10:00 a.m.—Fibrocystic Disease of the Breast—Subcutaneous Mastectomy and Augmentation Mammoplasty

T. Ray Broadbent, MD, and
Robert M. Woolf, MD
Salt Lake City, Utah

11:00 a.m.—Symposium on Lymphomas

Moderator: *J. Robert Stewart, MD*
Professor and Head
Division of Radiation Therapy
University of Utah College of Medicine
Salt Lake City, Utah

LUNCHEON SPEAKERS:

Governor Calvin L. Rampton

John A. Dixon, MD

Panelists:

W. Mitchell Sams, Jr., MD
Professor and Head
Division of Dermatology
University of Colorado Medical Center
Denver, Colorado

Jomes R. Eltringham, MD
Associate Professor
Division of Radiation Therapy
University of Utah College of Medicine
Salt Lake City, Utah

Stonley J. Altmon, MD
Consulting Hematologist
Latter-day Saints Hospital
Salt Lake City, Utah

12:15 p.m.—LUNCHEON BUFFET

1:00 p.m.—The Utah College of Medicine and Medical Association

Luncheon Speaker: *John A. Dixon, MD*, Dean
University of Utah College of Medicine
Salt Lake City, Utah

2:00 p.m.—Research Trends of Multiple Sclerosis

William A. Sibley, Jr., MD
Professor of Neurology
University of Arizona College of Medicine
Tucson, Arizona

2:30 p.m.—Symposium on Current Attitudes Regarding Coronary Artery Disease

Moderator: *Richard K. Hughes, MD*
Professor and Chairman
Division of Thoracic and Cardiovascular Surgery
University of Utah College of Medicine
Salt Lake City, Utah

Panelists:

Donald G. Mulder, MD
Professor of Thoracic Surgery
U.C.L.A. School of Medicine
Los Angeles, California

Ernest L. Wilkinson, MD
Salt Lake Clinic
Salt Lake City, Utah

Joseph L. Thorne, MD, Head
Cardiology Catheterization Laboratory
University of Utah College of Medicine
Salt Lake City, Utah

4:00 p.m.—Mechanism and Treatment of Urinary Infection in the Female

Jack Lapides, MD
Professor, Department of Surgery
Head, Section of Urology
The University of Michigan Medical Center
Ann Arbor, Michigan

4:30 p.m.—Life Events, Illness and Disease

Thomas H. Holmes, MD
Professor of Psychiatry
University of Washington School of Medicine
Seattle, Washington

Evening—SPECIALTY SOCIETY MEETINGS AND DINNERS

Friday, September 15

8:30 a.m.—REGISTRATION

9:00 a.m.—Family Practice as It Is Developing in the United States Today.

Robert E. Rakel, MD, Professor and Head
Department of Family Practice
University of Iowa College of Medicine
Iowa City, Iowa

9:30 a.m.—Symposium on Perinatal Problems

Moderator: *William S. Jordon, MD*
Associate Professor of Anesthesiology
University of Utah College of Medicine
Salt Lake City, Utah

Panelists:

Russell C. Raphaely, MD, Assistant Chairman
Department of Anesthesiology
Philadelphia Children's Hospital
Philadelphia, Pennsylvania

Edward J. Quilligon, MD, Professor and Chairman
Department of Obstetrics and Gynecology
University of Southern California School of Medicine, Los Angeles, California

William Oh, MD, Chief
Division of Neonatology
Department of Pediatrics,
Harbor General Hospital
Torrance, California

August L. Jung, MD
Assistant Professor of Pediatrics
University of Utah College of Medicine
Salt Lake City, Utah

11:00 a.m.—Symposium on Comprehensive Emergency Care Planning

Moderator: *Andrew C. Ruoff, III, MD*
Chief of Orthopedic Surgery
Veterans Administration Hospital
Salt Lake City, Utah

Panelists:

Fred B. Vogt, MD, Professor
Bio-Medical Engineering Laboratory
University of Texas at Austin

Mr. George A. Ineichen
Coordinator of Disaster Health Services
Utah State Division of Health
Salt Lake City, Utah

Mr. John A. Reinertsen, Administrator
University Hospital
Salt Lake City, Utah

Afternoon and Evening—Specialty Society Meetings and Dinners.

69th Annual Meeting
WYOMING STATE MEDICAL SOCIETY

Jackson Lake Lodge, Moran, Wyoming

August 29-September 1, 1972

TUESDAY, AUGUST 29

9:00 a.m. ANNUAL GOLF TOURNAMENT

10:00 a.m. REGISTRATION
ORIENTATION PROGRAM FOR NEW MEMBERS

3:00 p.m. COUNCIL MEETING

WEDNESDAY, AUGUST 30

8:00 a.m. REGISTRATION

SCIENTIFIC SESSIONS

8:30 a.m. **Proper Management and Recognition of Neurosurgical Problems Related to Head and Neck Trauma**
Wolff M. Kirsch, MD
Associate Professor and Chairman
Division of Neurosurgery
University of Colorado Medical Center
Denver, Colorado

9:15 a.m. **Four Questions on Continuing Medical Education**
Clement R. Brown, Jr., MD
Associate Professor, Medical Education
Center for Educational Development
University of Illinois College of Medicine, Chicago, Illinois

10:00 a.m. BREAK

10:20 a.m. **Thromboembolic Disease**
William H. Moretz, MD
President and Professor of Surgery
Medical College of Georgia
Augusta, Georgia

11:05 a.m. **Recognition and Management of Cerebral Tumors in General**
Wolff M. Kirsch, MD

11:50 a.m. ADJOURNMENT

12:15 p.m. WYOMING POLITICAL ACTION COMMITTEE LUNCHEON
Speaker:
Clifford P. Hansen
R-Wyoming, U. S. Senate

2:00 p.m. CREDENTIALS COMMITTEE MEETING

2:30 p.m. TIME AND PLACE COMMITTEE MEETING

3:00 p.m. HOUSE OF DELEGATES, OPENING SESSION

6:00 p.m. COCKTAILS

6:30 p.m. EXHIBITOR'S BUFFET
Speech:
The Wyoming Cowboy—1972
Fritz Shurmur
Head Football Coach
University of Wyoming
Laramie, Wyoming

8:00 p.m. OLD WEST CASINO NIGHT

THURSDAY, AUGUST 31

8:00 a.m. REGISTRATION

SCIENTIFIC SESSIONS

8:00 a.m. **Study Design and Logic in the Treatment of Patients with Cancer**
George R. Prout, Jr., MD
Chief of the Urological Service
Massachusetts General Hospital
Professor of Surgery
Harvard Medical School
Boston, Massachusetts

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Charles A. Hoffman, MD
President
American Medical Association

Fritz Shurmur
Head Football Coach
University of Wyoming

Clifford P. Hansen
U.S. Senator

8:45 a.m. **Coronary Artery Surgery for Angina Pectoris**
Russell M. Nelson, MD, PhD
Research Professor of Surgery
Director of Medical Services
Artificial Heart Test and Evaluation Facility
University of Utah College of Medicne, Salt Lake City, Utah

9:30 a.m. **Bi-cycle Concept Relating Continuing Education to Patient Care**
Clement R. Brown, Jr., MD

10:15 a.m. BREAK

10:30 a.m. **Most Frequently Prescribed Drugs—Cost to Patient**
Robert DeSalvo, PhD
Associate Professor of Pharmacy Administration
School of Pharmacy and Pharmacal Sciences
Purdue University
Lafayette, Indiana

11:15 a.m. **Causes and Prevention of Wound Dehiscence**
William H. Moretz, MD

12:00 noon ADJOURNMENT

12:15 p.m. LUNCHEON

2:00 p.m. NOMINATING COMMITTEE MEETING

2:30 p.m. REFERENCE COMMITTEE MEETINGS

6:30 p.m. COCKTAILS

7:30 p.m. ANNUAL BANQUET
Speaker:
Charles A. Hoffman, MD
President
American Medical Association

FRIDAY, SEPTEMBER 1

8:00 a.m. REGISTRATION

SCIENTIFIC SESSIONS

8:00 a.m. **Current Concepts and the Management of Patients with Prosthetic Carcinoma**
George R. Prout, Jr., MD

8:45 a.m. **Current Status of Nuclear Medicine**
E. James Potchen, MD
Professor of Radiology
Radiology-Neurology Medical Division
Washington University School of Medicine, St. Louis, Missouri

9:30 a.m. **Progress in Cancer**
George E. Cartwright, MD
Professor and Chairman
Department of Medicine
University of Utah College of Medicine, Salt Lake City, Utah

10:15 a.m. BREAK

10:30 a.m. **Open Heart Surgery in Patients over the Age of 60**
Russell M. Nelson, MD, PhD

11:15 a.m. **Physiologic Basis of Medical Practice —Some Recent Developments**
E. James Potchen, MD

12:00 noon ADJOURNMENT

12:15 p.m. LUNCHEON
Speaker:
Fenworth M. Downing, MD
President
Wyoming Health Services Company

2:00 p.m. HOUSE OF DELEGATES, CLOSING SESSION

4:30 p.m. COUNCIL MEETING

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—George Sarton, from "The History of Medicine Versus the History of Art"

Would it be useful in clinical practice to have government predetermine drugs of choice?

Opinion

Results of a survey of physicians:

13.3%
Yes, it would be useful.

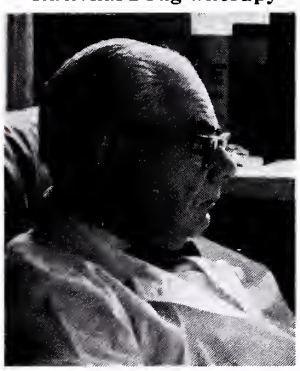
86.7%
No, it would not be useful.

Dialogue

Would it be useful in clinical practice to have government predetermine drugs of choice?

Doctor of Medicine

Walter Modell, M.D.,
Professor of Pharmacology,
Cornell University
Medical College,
Editor,
Clinical Pharmacology
& Therapeutics,
Drugs of Choice,
Rational Drug Therapy



The proposition that government should determine one or two "drugs of choice" within a given therapeutic class reflects the belief that a similarity in molecular structure insures a close similarity in pharmacologic effect. But this is by no means the rule. An obvious example would be in the field of diuretics, where a small change in chemical structure accounts for substantial differences in concomitant effects such as potassium excretion.

Any attempt to dictate the "drug of choice" would be complicated by the fact that some populations demonstrate a bimodal distribution in their reaction to drugs. If the data on drug response are mixed for the total population, one drug will appear to be as useful as the other. But if drug response is reported separately for different segments of the population, drug A will be found to be better for one group and drug B for the other.

It may, of course, be possible to determine drugs of choice in particular categories on a broad statistical basis. But there are always certain patients in whom a drug produces odd, unpredictable or idiosyncratic reactions. So, though a drug might statistically be the most useful one in a given situation, individual variations in response might make it the *incorrect* one.

The point I wish to make is that if two, three, four or more drugs in one class are of approximately equal merit, that in itself is justification for their availability. Exceptional cases do arise in which one drug would be useful to a certain segment of the population and another drug would be of no use at all. In the practice of medicine, the physician must be prepared to treat the routine as well as the unusual case.

Another objection to the determination of a drug of choice is that precise statements of *relative* efficacy are very difficult to make—much more difficult than statements of efficacy. For example, in testing drug efficacy, it is easy to determine the difference between a drug that is effective in treating a condition and one that is not at all effective. Thus, it is fairly easy to determine whether a drug is more effective than a placebo. But if you compare one drug that is effective with another drug that is also effective, and the relative differences between them are very slight, statements of relative efficacy may be very difficult to make with assurance.

I do not mean to imply that relative efficacy statements are not useful or can never be made. With some groups of drugs (e.g., analgesics), extensive study and precise methodology have yielded useful information on relative efficacy. But in most situations, such information can be acquired only through studies encompassing three to five years of use in many more patients than are used to compare drugs with a placebo for the introduction of a drug into commerce. It is really only after practitioners use a drug extensively that relative safety and efficacy in practice can really l determined.

The Bureau of Drugs h suggested the package i sert as a possible means communicating informati on relative efficacy of dru to the physician. I find th objectionable, since I c not believe the physici should have to rely on th source for final scientif truth. There is also a pra tical objection: Since fe physicians actually di pense drugs, they seldo see the package insert. I any event, I would mai tain that the physicia should know what drug h wants and why without d pending on the governme or the manufacturer to te him.

Undoubtedly, physician are swamped by excessiv numbers of drugs in som therapeutic categories. An I am well aware that man drugs within such cate gories could be eliminate without any loss, or pe haps even some profit, t the practice of medicin But, in my opinion, neithe the FDA nor any othe single group has the expe tise and the wisdom neces sary to determine the on "drug of choice" in a areas of medical practice.

Maker of Medicine

enneth G. Kohlstaedt, M.D.,
Vice President,
Medical Research,
Eli Lilly and Company

In my opinion, it is not
e function of any govern-
ent or private regulatory
ency to designate a "drug
choice." This determina-
on should be made by the
ysician after he has re-
ived full information on
e properties of a drug,
d then it will be based on
s experience with this
ug and his knowledge of
e individual patient who
seeking treatment.

If an evaluation of com-
rative efficacy were to be
ade, particularly by gov-
nment, at the time a new
ug is being approved for
arketing, it would be a
eat disservice to medi-
ne and thus to the patient
the consumer. For exam-
e, when a new therapeu-
agent is introduced, on
e basis of limited knowl-
ge, it may be considered
be more potent, more
fective, or safer than
oducts already on the
arket. Conceivably, at
is time the new drug
uld be labeled "the drug
choice." But as addi-
nal clinical experience is
cumulated, new evidence
ay become available.
ater, it may be apparent that the established products should not be so easily dismissed.

Variation in patient response to drugs constitutes one of the major obstacles to the determination of "drugs of choice." We are just beginning to open the door on pharmacogenetics, but it is evident that genetic differences cause wide variations in the way drugs are absorbed, metabolized, etc. This fact alone is sufficient to make unrealistic the idea that there is one drug in each class to be used for every human being.

The problem of determining relative drug efficacy is an extremely complicated one. Comparison with other drugs of the same class should not be a prerequisite for marketing a new substance. In some therapeutic areas, it may be difficult to make accurate comparisons. For example, in the treatment of infections it is not possible to conduct crossover studies. Recovery may be influenced by factors which cannot be controlled or measured, i.e., natural host resistance and virulence of infective agents. A drug's acceptability must often be judged on the basis of its own performance, and this may be limited to experience in a relatively small patient population. If the introduction of a new drug must await the adequate establishment of relative efficacy, the duration of clinical trial and extent of studies would be greatly prolonged, particularly for rare or unusual conditions. The availability of a new drug would be delayed. Many patients might suffer needlessly and lives might be lost.

Relative efficacy can best be established by experience in a general patient population through regular channels of clinical practice. The physician considers the patient as a whole, which means the patient often has multiple problems and drugs must be selected with this in mind. Hence, a "drug of choice" in an uncomplicated case may not be the best drug for a patient with associated problems. Publication of well-controlled studies in medical journals may provide comparative evidence; discussions at medical meetings, presentations at postgraduate courses, and the new audio-visual technology may bring evidence to physicians on comparative therapy. In a free medical marketplace, a drug that does not measure up will fall into disuse. For example, broad clinical experience has established vitamin B_{12} as the "drug of choice" for the treatment of primary pernicious anemia. No amount of advertising or promotional effort by the manufacturer could increase the use of liver extract for this anemia. However, a physician may wish to employ parenteral liver preparations for a special purpose.

In the field of surgery, peer review in the hospital has brought significant improvement in the use of new techniques and procedures. Something of this nature would be useful in the area of drug therapy. However, it should be developed by the medical profession itself and would necessitate, for its proper function, an improvement in the dissemination of reliable data on clinical pharmacology of drugs under consideration.

Ideally, information on the relative efficacy of drugs should be gathered and assessed by the physicians who actually administer the specific agents to a specific patient population. To do this, they will need even more information on the drugs they use -- information that the pharmaceutical manufacturers must begin to provide if government regulation of *"drugs of choice"* is to be avoided.

Opinion & Dialogue

What is your opinion, doctor?
Send us your comments on the above issue.

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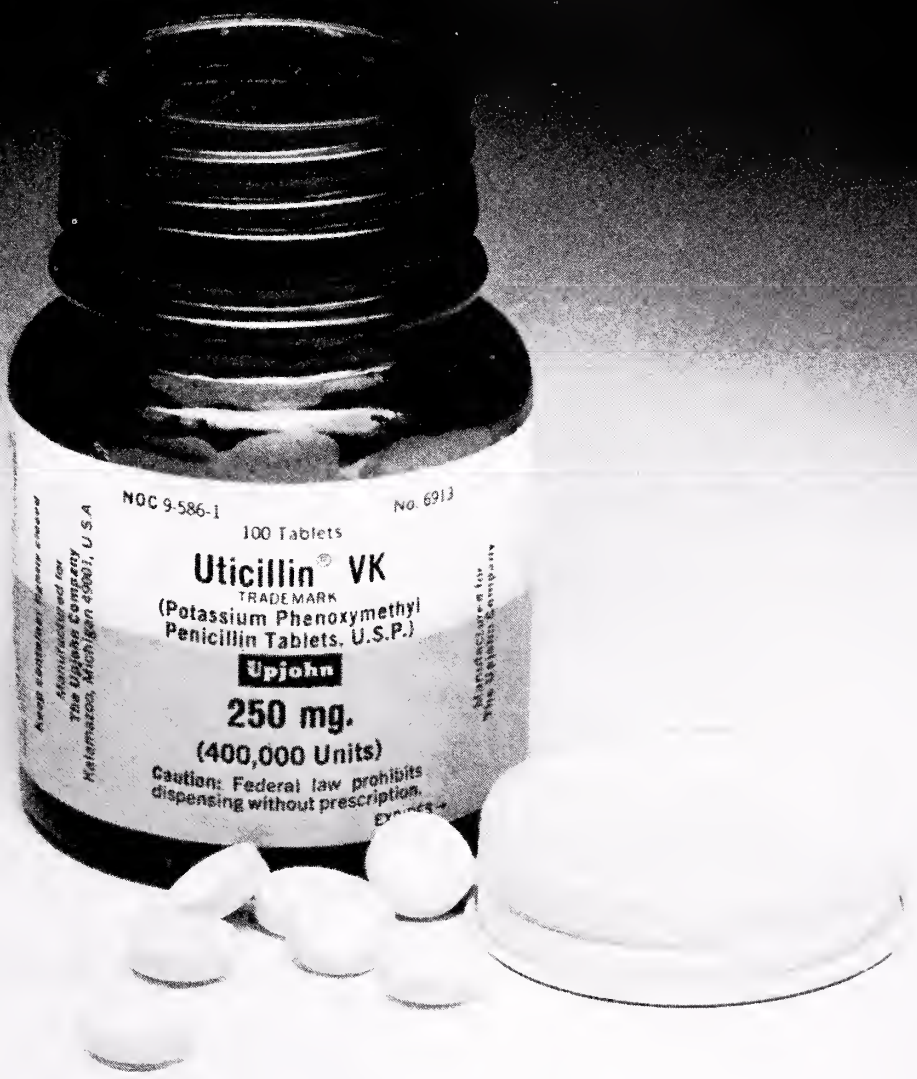

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MEETINGS

American College of Chest Physicians

38TH ANNUAL SCIENTIFIC ASSEMBLY
Denver, Colorado
October 23-26, 1972

PEDIATRIC CARDIOPULMONARY CARE
Aspen, Colorado
February 25-March 1, 1973

For further information about the meeting and postgraduate course, write: American College of Chest Physicians, 112 East Chestnut Street, Chicago, Illinois 60611.

American College of Physicians

MONTANA-WYOMING REGIONAL MEETING
Helena, Montana
October 6-7, 1972

For further information, write: Allan L. Goulding, MD, Billings Clinic, Billings, Montana 59101.

UTAH REGIONAL MEETING
Salt Lake City, Utah
October 13-14, 1972

For further information, write: James Rex Miller, MD, 333 South Ninth East Street, Salt Lake City, Utah 94102.

American College of Cardiology

CURRENT CONCEPTS IN CARDIOLOGY 1973
Caesars Palace, Las Vegas, Nevada
April 30-May 3, 1973

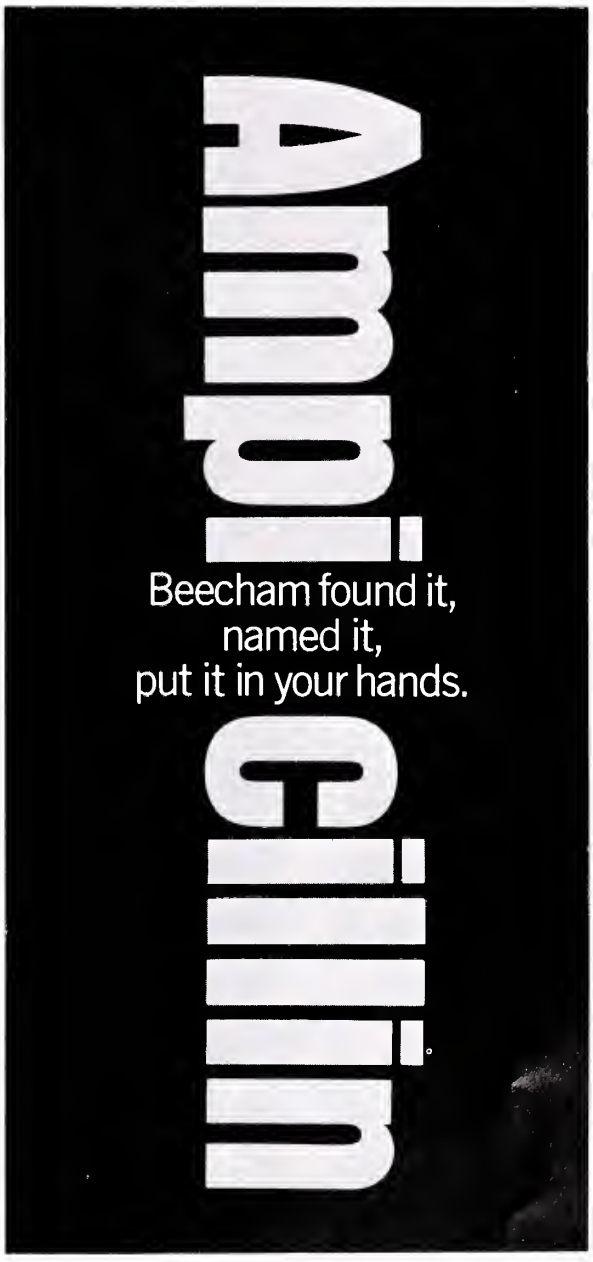
For further information, write: Miss Mary Anne McInerny, Director, Department of Con-Cardiology, 9650 Rockville Pike, Bethesda, Maryland 20014.

University of Utah and George Washington University

ARTHROGRAPHY, LYMPHOGRAPHY, AND TEMPORAL BONE RADIOGRAPHY
Sahara Hotel, Las Vegas, Nevada
January 30-February 2, 1973

Few formal lectures will be given during the course. Instead, two or three two-hour long seminar sessions will be held daily and the group size in each seminar will be no larger than 12 persons. The seminar directors will be expert radiologists, and each will supervise detailed case analysis by the participants.

For further information, write: P. Ruben Koehler, MD, University of Utah Medical Center, Salt Lake City, Utah 84112; or David O. Davis, MD, George Washington University Hospitals, Washington, D.C.



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American Rhinologic Society

18TH ANNUAL MEETING
New Orleans Marriott, New Orleans, Louisiana
September 22, 1972

Problems of Breathing in Space, under Water, in Earth Atmosphere; The Nose and the Environment, Progress in Nasal Surgery; and other topics will be featured.

For further information, write: Gerald F. Joseph, MD, 3622 Government Street, Baton Rouge, Louisiana 70806.

American Cancer Society and National Cancer Institute

SEVENTH NATIONAL CANCER CONFERENCE
Biltmore Hotel, Los Angeles, California
September 27-29, 1972

For further information, write: Sidney L. Arje, MD, American Cancer Society, 219 East 42nd Street, New York, New York 10017.

Association of Military Surgeons of the United States

79TH ANNUAL CONVENTION
Convention Center, San Antonio, Texas
December 10-13, 1972

For further information, write: Office of Information, Aerospace Medical Division, Air Force Systems Command, Brooks Air Force Base, Texas.

American Medical Association

AIR POLLUTION MEDICAL RESEARCH CONFERENCE

Drake Hotel, Chicago, Illinois

October 2-3, 1972

In addition to the presentation of scientific papers, the Conference will include sessions on familial and inherited response to air pollution, air pollution and human illness, health effects research, and epidemiology.

For further information, write: Department of Environmental, Public, and Occupational Health, American Medical Association, 535 North Dearborn Street, Chicago, Illinois 60610.

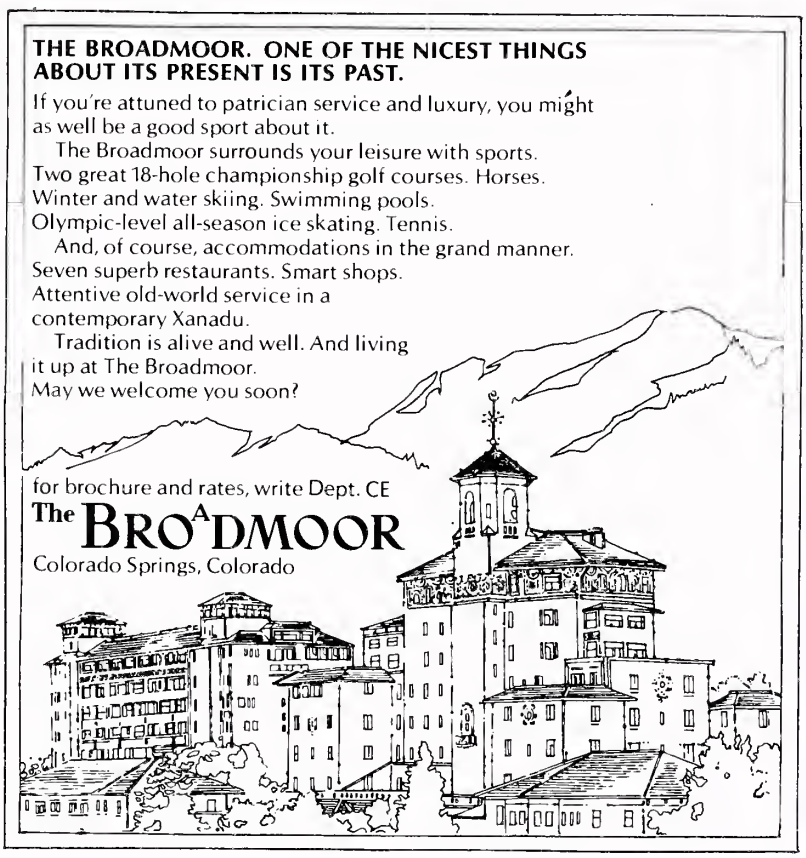
American Electroencephalographic Society and American Society of Electroencephalographic Technologists

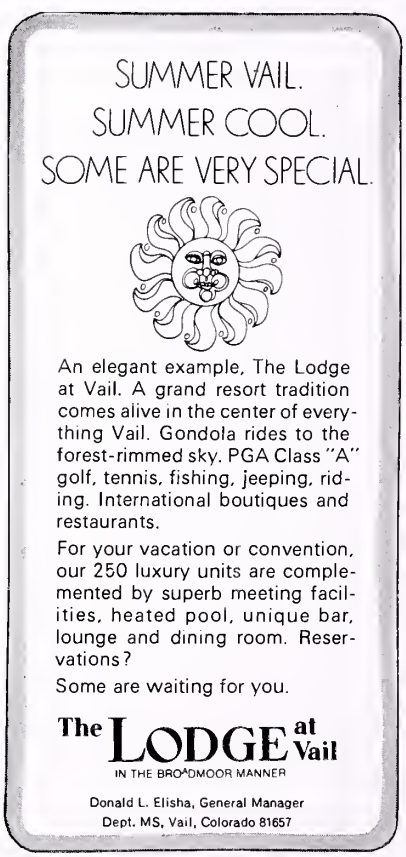
1972 ANNUAL MEETING

Shamrock Hilton Hotel, Houston, Texas

October 12-14, 1972

For further information, write: Mrs. Margaret H. Henry, Executive Secretary, American Electroencephalographic Society, 36391 Maple Grove Road, Willoughby Hills, Ohio 44094.





MEDICAL SCHOOL NOTES

University of Nevada School of Medical Sciences

The charter class of the School of Medical Sciences of the University of Nevada, Reno, is participating in summer preceptorship training with physicians throughout the state. The preceptorship program is designed to bridge the gap between the classroom and the community by allowing the medical students to work in close association with many Nevada doctors. Twenty-seven of the 32 medical students are participating in the voluntary summer work-study program.

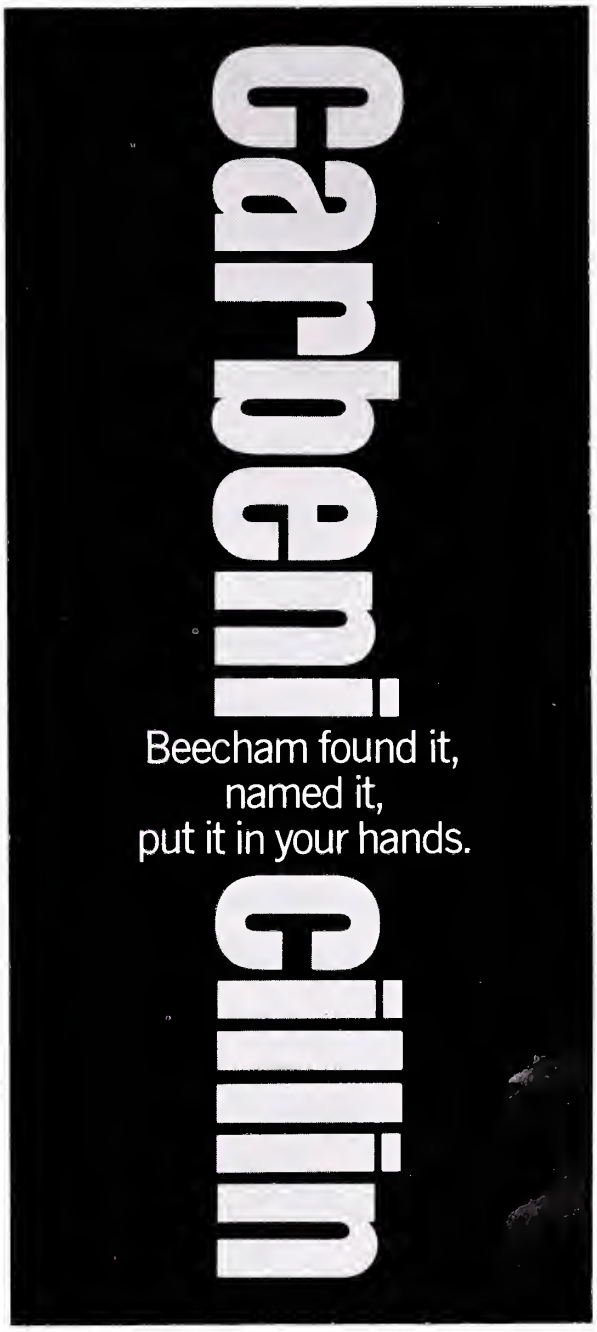
In the preceptorship experience, the medical students will spend nine weeks with family practioners, pediatricians, internists, and other Nevada physicians engaged in primary health care. "The program will provide the students with firsthand experience in the nature of primary health care and community health problems in the state," said Dr. Thomas J. Scully, director of the Clinical Sciences Division. "The students will be exposed to all aspects of the physicians' professional and personal lives and experiences in order to gain valuable insight and experience." Students will be rotated through various disciplines of both rural and urban areas of Nevada. The orientation and training will take place in physician offices, affiliated community hospitals, public health clinics, and other facilities related to primary health care.

Dr. George T. Smith, dean of the Medical School, said that the early clinical exposure will provide the students with practical applications of their basic classroom knowledge in the biomedical, behavorial, and clinical sciences. "By developing a close relationship with Nevada physicians and by better understanding Nevada health problems, we hope the students will want to eventually practice family medicine and primary health care throughout the undermanned areas of Nevada and the region," said Dr. Smith.

* * * * *

With the dedication of the Fred M. Anderson Health Science Building, the University of Nevada School of Medical Sciences has received several grants to aid in its expanding health programs.

Medical books and slides valued at more than $5,000 have been donated by the CIBA Pharmaceutical Company. The CIBA collection is highly regarded by medical faculty and students throughout the nation and was hailed as one of the most



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valuable teaching tools in the Medical School. The contribution includes seven hardbound volumes of books and the 1,700 corresponding Kodachrome slides dealing with the nervous, reproductive, digestive, and endocrine systems and the heart.

The Luke B. Hancock Foundation of Palo Alto, California gave $15,000 for the Medical Technology Program in addition to its previous contribution of $45,000. This new grant will permit the School to improve and update the content and equipment of several of the laboratory courses in the Medical Technology Program.

A check for $9,197 was presented to the School by Dr. Wesley W. Hall, immediate past president of the AMA and Nevada physician. The funds came from the AMA Education and Research Foundation and will probably help finance a new staff position.

University of New Mexico School of Medicine

A grant of $923,372 to the University of New Mexico School of Medicine was made by the Physicians Augmentation Program. The donation will enable the school to increase its enrollment to 215 future doctors. Of the 64 new students admitted to the program, 59 are from New Mexico.

The grant is the second year of a four-year grant totaling more than $3.6 million and was awarded on a national competitive basis to 27 schools of medicine and osteopathy under the Physicians Augmentation Program, which is authorized under provisions of the Health Manpower Act of 1968. Grants are administered jointly by the Division of Physician Manpower and the Division of Health Manpower Educational Services, both components of the National Institutes of Health. The main idea behind the Program is to encourage existing medical schools to accept more students, rather than building more new medical schools.

* * * * *

The medical residency program of the University of New Mexico School of Medicine has been extended for the first time to a hospital outside of Albuquerque when two doctors began work at St. Vincent's Hospital in Santa Fe in late June. By sending residents for part of their final training in community hospitals throughout New Mexico, it is hoped that more young physicians will set up practices in various parts of the state. According to Dr. Ralph Williams, chairman of the Department of Medicine, about 50 residents have completed training in internal medicine under the University's supervision during the past five years. Of these, 80 per cent are now practicing in New Mexico or adjoining states.

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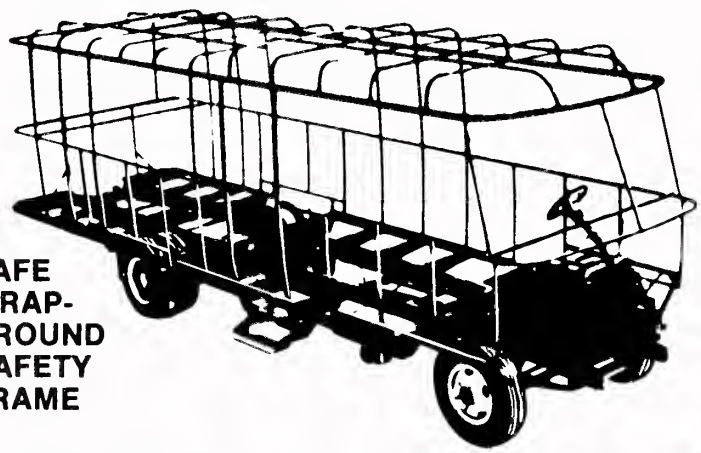

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THE BOOK CORNER

New books received are acknowledged in this section and such acknowledgment must be regarded as sufficient return for the courtesy of the sender. Selection will be made for review in the interests of our readers and as space permits. Books are listed with advance data supplied by publishers. Prices quoted are not guaranteed. For further information, address queries to the publishers. Books here listed are available for lending from the Denver Medical Society Library.

Recent Acquisitions

Anatomy of the Brain: By Sir Christopher Wren. New York, 1971, USV Pharmaceutical Corp. 119 p. Price: Gift.

Cardiovascular Clinics, 3 vols.: Edited by Albert N. Brest. Philadelphia, 1971, Davis. Price: $22.50 each.

Civilian Doctor in Viet Nam: By Fred Gloeckner. Philadelphia, 1972, Winchell. 123 p. Price: $5.00.

Civilization and Science: By Ciba Foundation. New York, 1972, Elsevier. 227 p. Price: Gift.

Clinical Anesthesia, v. 8: Edited by William Dornette. Philadelphia, 1972, Davis. 599 p. Price: $23.00.

Clinics in Endocrinology and Metabolism: Calcium Metabolism and Bone Disease, v. 1: By Saunders. Philadelphia, March 1972, Saunders LTD. 328 p. Price: Yearly subscription.

Clinics in Gastroenterology, v. 1 #1: Edited by Henry T. Howat. Philadelphia, 1972, Saunders. 260 p. Price: Not Set.

Clinics in Haematology, v. 1: Edited by Stuart Roath. Philadelphia, 1972, Saunders. 230 p. Price: Not Set.

Continuing Medical Education in Community Hospitals: By Norman S. Stearn and others. Boston, 1971, Massachusetts Medical Society. 179 p. Price: Gift.

Dealing with Drug Abuse: By Ford Foundation. New York, 1972, Praeger. 396 p. Price: Gift.

Diabetes Mellitus: Diagnosis and Treatment, v. 3: By American Diabetes Assoc. New York, 1971, American Diabetes Assoc. 430 p. Price: $5.75.

Early Diagnosis of Human Genetics Defects: Edited by Maureen Harris. Washington, D.C., 1971, Dept. HEW. 229 p. Price: $2.50.

Fundamentals of Athletic Training: By Comm. American Medical Association. Chicago, Ill., 1971, AMA. 128 p. Price: $2.00.

Hematologic Problems in The Newborn: By Frank A. Oski and J. L. Naiman. 2nd ed. Philadelphia, 1972, Saunders. 400 p. Price: $20.00.

Legal Implications of Emergency Care: By Neil L. Chayet. New York, 1969, Appleton. 342 p. Price: Gift.

Stedman's Medical Dictionary: 22nd ed. Baltimore, 1972, Williams & Wilkins. 1533 p. Price: $18.50.

William Osler's Master-Word in Medicine: By Charles G. Roland. Springfield, Ill., 1972, Thomas. 34 p. Price: $5.75.

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THE ROCKY MOUNTAIN MEDICAL JOURNAL has paid tribute editorially to a number of distinguished medical men in the region which it serves. Justice to all who have deserved such recognition would be an insurmountable task. We believe that accolades should be made when honorees still live, but more often great men pass on before the act is done. So it has been, unfortunately, with one of our most distinguished colleagues. Dr. Kenneth Allen was actively engaged in the practice of radiology and was head of the Department of Radiotherapy at Presbyterian Medical Center in Denver to within a few weeks of his death at the age of 83. Somehow he seemed to be indestructible and we accepted him as an institution, which indeed he was, securely established and destined to go on forever.

Kenneth D. A. Allen

Doctor Allen worked longer than most of us into the sunset years because of his love for his specialty—and also with an affection even greater for his patients. Not one of them ever left his presence without comfort and renewed hope for better days to come. A more kindly gentleman has surely never lived. His usual working hours were six until six, dawn to dusk, happily serving good people in a field where kindness is often greater therapy than medicine or surgery.

Newspapers and journals have amply recounted the professional history of this remarkable man and we need not repeat it here. He served with distinction in World Wars One and Two, decorated by governments of England and France as well as of our own country. Teaching and training students, radiologists, and radiologic technicians did much to advance his specialty locally and nationally. Doctor Allen occupied positions of responsibility in his specialty and in organized medicine during most of his long career. Time was given to the Veterans Administration, and he was emeritus professor of radiology at the University of Colorado School of Medicine. Masonry, church, and civilian activities were not neglected—nor his lovely wife, the former Helen G. Sams, equally beloved by all who know her.

In this mixed up world there are too few men who serve humanity, as well as science, with equal distinction. Were there more of them, our profession would be less criticized and it would not have become depersonalized by governmental intervention. Doctor Allen was good for each and every one of us and he enhanced the affection and respect which our profession should, idealistically, enjoy. He will be sadly missed but the good he has done—and inspired others to perform—will live on long after time has softened the gentle lustre of this useful life.

The Doctor and the Environment

PHYSICIANS OF COLORADO are deeply committed to identification, evaluation, and attempted solution of environmental problems that have impact on human health. However, one major problem exists in the above scheme, i.e. how best to communicate these activities from one individual physician to another — from one community to another — and, indeed, from one state to another.

At its meeting on environmental and public health in Los Angeles, April 23 to 25, 1972, the AMA Council on Environment attempted to find answers to this problem. In attendance were AMA representatives, attendees from state medical society councils and committees on environment, state health officers, and representatives from various government organizations such as the Department of Health, Education and Welfare and the Environmental Protection Agency.

It was apparent in the meeting discussions that Colorado and California led all other eight western states in environmental activity involving individual practicing physicians. We are especially fortunate in the state of Colorado to have a good working relationship with community, state and area-wide organizations such as the Colorado Open Space Council (COSC) and Rocky Mountain Center on Environment (ROMCOE), both of which include interested people from all professions and walks of life. These organizations need the help of our Medical Society in evaluating and identifying the medical impact of environmental problems as they arise.

The Congress on Environmental Health which followed the initial meeting discussed the ramifications of "Human Habitat and Health" in the urban community. This informative, erudite meeting pointed up sharply the problem which exist in the urban society today and the fact that the physician relationship to the problem has, unfortunately, been tangential up to the present time. Topics discussed by experts in the field of urban planning, architecture, environmental and public health, psychiatry, and psychology emphasized the major physical, psychological, and social stresses that affect health and well-being in the metropolitan area.

The Colorado Medical Society's representatives to this meeting recommend that other physicians would find it most worthwhile to attend this yearly gathering. Copies of the seminars and papers given may be obtained through the Department of Environmental and Occupational Health, American Medical Association, 535 North Dearborn Street, Chicago, Illinois 60610.

In an effort to facilitate the most efficient and judicious use of our own physician expertise in environmental areas, the Ad hoc Committee on Environment of the Colorado Medical Society was organized in September 1971. In the Committee's discussions, it has become apparent that some mechanism is needed whereby individuals in local community medical societies can initiate action on their own environmental problems with the help of state-wide agencies. To provide information on environmental matters and to assist local societies in their own efforts, a workshop, entitled "Environmental Problems—What the Individual Physician Can Do", is planned for late fall 1972, and the program includes stimulating speakers on various environmental issues. Your Committee believes this workshop will provide an arena for medical, legislative, and environmental groups to pool their talents, and from their collective thoughts we can develop knowledgeable and effective means for action on our state environmental problems. By working together, we can and will find solutions sooner rather than later.

Ad hoc Committee on the Environment

C. A. Dafoe, MD

Carlton M. Dean, Jr., MD

Diaphragmatic hernia simulating staphylococcal pneumonia*

F. T. Welch, MD, Harlem, Montana, and
S. A. Reynolds, MD, Havre, Montana

An unusual case of congenital Bochdalek diaphragmatic hernia simulating pneumonia with pleural effusion in an 11-month-old child is presented.

THERE ARE THREE types of congenital diaphragmatic hernias. The most common is the posterolateral hernia described by Bochdalek in 1848.[1] Hiatal hernias, which are not usually symptomatic in childhood, and the retrosternal hernia of Morgagni are less frequently seen. All of these are caused by incomplete closure of elements of the diaphragm, which is usually formed by the ninth week of intrauterine life.[2]

The foramen of Bochdalek hernia, resulting from incomplete closure of the pleuroperitoneal canal, occurs one in 7,000 live births.[3] These are the most common congenital diaphragmatic hernias, which usually occur on the left side and are most often discovered in infancy.[4,5] They usually cause symptoms at birth, presenting as acute respiratory emergencies in the neonate. Less commonly, they present with chronic respiratory or gastrointestinal symptoms later in childhood.[3]

CASE REPORT

An 11-month-old Indian female was admitted to Fort Belknap Public Health Service Indian Hospital with a history of acute onset of fever, lethargy, anorexia, and emesis the night before. On physical examination the child's temperature was 101.4° rectally; she was somnolent, lethargic, and hypotonic. There was dullness to percussion over the right anterior and lateral thorax, bilateral rales and rhonchi were auscultated. The chest was symmetrical with normal expansion, though retracting moderately. The abdomen was soft, and her bowel sounds were active. White blood count was elevated with a left shift; hematocrit was 34 per cent. Spinal fluid study was normal; chest x-ray (Fig. 1) showed consolidation of right lower and much of the right middle lobes, with an obscured right costophrenic angle. Sputum examination showed gram positive diplococci with many polymorphonuclear leukocytes. Thoracentesis yielded only a small amount of serous fluid which contained many polymorphonuclear leukocytes with negative gram stain. Arterial blood gases revealed a pO_2 of 44, pCO_2 of 39, and pH of 7.435. She was started on oxygen, intravenous fluids, and penicillin with the presumptive diagnosis of pneumococcal pneumonia with effusion.

Fig. 1. Admission chest x-ray showing consolidation of right lower and middle lobes.

*From the Public Health Service Indian Hospital, Fort Belknap Agency, Harlem, Montana.

Twelve hours after initiation of penicillin therapy she defervesed. The sputum culture grew out pneumococcus; cultures of cerebrospinal fluid, multiple blood cultures, thoracentesis fluid, and urine were all without growth; throat culture showed group A Beta hemolytic streptococcus. Thirty-six hours after admission she had become more active with a good cry but started to vomit small amounts of bilious fluid, and a naso-gastric tube was placed. Her auscultatory findings improved within 48 hours; however, her lungs were not entirely clear of rales or dullness, and she was still retracting and tachypneic. Her intermediate PPD and multiple sputa of AFB stains were negative. Five days after admission, her chest x-ray (Fig. 2) revealed the fluid had cleared enough to show air-filled areas in the location of the right lower and middle lobes. These were felt to represent pulmonary abscesses.

As she had not markedly improved, the possibility of inadequately treated staphylococcal pneumonia was strongly considered. Multiple cultures were again obtained, and thoracentesis was repeated showing few white blood cells. The patient was started on intravenous methicillin. Cultures of throat, nasopharynx, and sputum revealed coagulase positive staphylococci sensitive to penicillin; no other cultures were positive. A lateral decubitus chest x-ray showed a probable air fluid level in one of the aerated areas. She continued to be unable to eat and vomited whenever her nasogastric tube was discontinued. Eight days after admission, chest x-rays showed a gas pattern possibly compatible with colon, but diaphragmatic hernia was thought unlikely. Bowel sounds were heard over the right chest nine days after admission, and the patient underwent upper GI series and fluoroscopy. The upper GI series was normal, and Bucky chest x-rays showed what was thought to be extensive pneumatoceles of the right lower and middle lobes. The right diaphragm was unidentifiable. However, the impression continued to be extensive pneumonia on the right with pneumatocele formation, probably staphylococcal in origin.

Repeat chest x-ray one day later (Fig. 3) showed barium-filled bowel in the right chest. The patient was transferred to Northern Montana Hospital in Havre, Montana, where she underwent repair of a large right posterolateral diaphragmatic hernia. A large amount of malrotated colon and distal small bowel was removed from the right thoracic cavity. There was no hernial sac. Postoperative chest x-ray showed almost complete expansion of the right lung (Fig. 4). The child's postoperative course was uncomplicated, and she was discharged nine days later.

Fig. 2. Five days after admission chest x-ray showed what was felt to represent pulmonary abscesses.

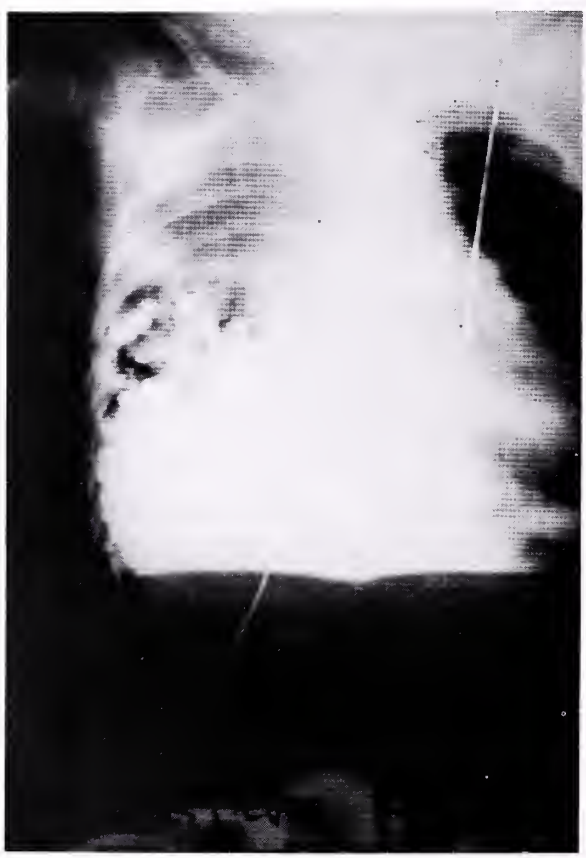

Fig. 3. Ten days after admission chest x-ray showed bowel in right chest.

Fig. 4. Postoperative chest x-ray showing nearly complete expansion of right lung.

Discussion

Diaphragmatic hernias occur in either congenital or post-traumatic forms. The majority of symptomatic congenital diaphragmatic hernias are on the left, with an incidence five times more frequent than those on the right,[3] and are of the pleuroperitoneal type. Male to female incidence has been reported as two to one.[6] Approximately one-third of these hernias have sacs, and hernias without sacs are more likely to cause symptoms early.[5] They have on occasion been confused with pleural effusion, pneumonia, congenital lung cysts, and staphylococcal pneumonia. The presence of a hernial sac and the size and location of the hernial defect determine the degree of displacement of abdominal viscera and the extent of collapse of the lung. These factors may determine the severity of symptoms and the age at which surgical intervention becomes necessary.[7]

In the newborn, the classical triad of dyspnea, cyanosis, and "dextrocardia" should alert one to the possibility of diaphragmatic hernia. The child may also have a scaphoid abdomen instead of a normally protuberant one, an enlarged thorax, and decreased respiratory excursion on the involved side with tracheal deviation away from that side. Auscultation of bowel or breath sounds are unreliable signs secondary to easy transmission of these sounds in infants.[5] The diaphragmatic hernias discovered in this age group are usually surgical emergencies, and operative mortality is nearly 50 per cent.[6,8] Children in the older age group may present with these findings but they are usually less classic and may have only minor chronic respiratory or gastrointestinal complaints. The diagnosis can usually be made by history, physical findings, and chest roentgenogram, but in the more confusing case contrast studies are necessary.

Associated congenital anomalies, particularly abdominal, are common. Intestinal malrotation occurs in slightly greater than 50 per cent,[9] and other associated abnormalities, such as thoracic kidney,[10] occlusive bands, and abnormal duodenal, colonic, and pancreatic peritoneal attachments,[7] have been reported. Hypoplasia of the ipsilateral lung is frequently associated with those hernias found in the neonatal group.[3,11] In the older age groups the lung is usually normal and postoperatively expands completely.

The treatment of choice is operative repair, which should be attempted as soon as the diagnosis is made, before respiratory embarrassment or obstruction progresses. The surgical approach usually recommended for Bochdalek diaphragmatic hernias is through an abdominal incision due to the ease of returning the abdominal organs to the abdomen and importance of thorough evaluation for other intra-abdominal anomalies.[7] This approach is particularly important if the volume of the abdomen is reduced, which is frequently the case. Some authors recommend routine formation of a ventral hernia with elective closure at a later date.[9] Routine gastrostomy to ease decompression of the abdominal contents postoperatively and prevent vomiting and aspiration has also been recommended.[9] The transthoracic approach is rarely used for the reasons outlined above, but it is said to offer an easier repair of the hernial defect. To insure pleural drainage and facilitate expansion of the collapsed lung, an endothoracic tube is usually indicated.[7]

Summary

The patient described represents an unusual and confusing case of a right Bochdalek diaphragmatic hernia. This 11-month-old girl presented with acute symptoms and findings which seemed to be due to a typical

right-sided pneumococcal pneumonia. Pneumococci were isolated from her cultures, and she may have had a pneumonitis superimposed on her collapsed lung. When she did not improve, and her chest x-ray showed what was thought to be pulmonary abscesses, staphylococcal pneumonia was suspected. Suspicion of diaphragmatic hernia was raised when the gas pattern in the chest changed, and this diagnosis was only seriously considered when bowel sounds were heard in the chest. Diaphragmatic hernia was still thought unlikely after initial GI series but was confirmed one day later on follow-up chest x-ray, which showed contrast material in herniated bowel. •

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Loeffler's Syndrome

A case report

Theodore R. Lenz, MD, Pueblo, Colorado

Immunoglobulins, essential to combat foreign antigens, paradoxically can attack autologous antigens and cause death. This case report illustrates some of the problems in diagnosis and management of an immunologic disorder.

LOEFFLER'S SYNDROME IS A mild febrile illness with patchy pulmonary infiltrations on the chest film and eosinophilia in the peripheral blood. Eosinophilia exists when the eosinophils in the peripheral blood number above 250 per cubic millimeter. In this syndrome the disease-producing agent is not identified, since eosinophils are associated with any antigen-antibody reaction. Ordinarily the antigen is presumed to be of "foreign origin". Unfortunately the offending antigen can be either endogenous or autologous.

CASE REPORT

A 49-year-old woman complained of a generalized rash, swollen, pruritic legs, cough, and generalized aching. She had also lost about six pounds. There was no recent history of hemoptysis or purulent sputum. She had not been exposed to psittacosis, Q fever, or parasites. She had not eaten any unusual foods and had not taken any medication in the last month.

For many years she had experienced allergic disorders such as hives, hayfever, and asthma. Fifteen years ago her left breast was removed for cystic disease.

The patient was acutely ill with anasarca and a generalized pruritic, macular, erythematous rash. There was no fever. Her pulse was 124. Blood pressure was 150/100. She had no otitis. In the upper pole on the right side of the thyroid was a one-cm nodule which was firm and easily movable. Over the chest there were wheezes bilaterally. There were no areas of abnormal dullness, no cardiomegaly, and no arrhythmia. No tender arteries were found. No acute arthritis was observed. The legs were edematous.

X-ray of the chest demonstrated several small patches of what appeared to be bronchopneumonia scattered throughout the lung fields. X-rays of her sinuses revealed evidence of bilateral maxillary sinusitis. A lung scan for emboli was negative. The thyroid scan showed an abnormal area of decreased uptake over the right upper pole. Intravenous pyelograms were normal.

There was leukocytosis of 17,000 per cubic millimeter with 23 per cent eosinophils. She was not anemic. Sed-rate was 44 millimeters per hour. Urine had a specific gravity of 1.020 and 4+ albumin.

Because of the atypical pneumonia, a cold agglutinin titer was obtained. It was reactive 1:64. Serum proteins were studied because of her edema and albuminuria. Albumin was abnormally low at 1.8 grams per cent, globulins were higher than normal, 4.1 grams per cent. The alpha 2 fraction was especially elevated, 1.1 gram per cent. Cholesterol was 368 grams per cent. Serum electrolytes were normal except for hyperchloremia, 111 mg per cent. BUN was 41 mg per cent, and creatinine clearance was reduced to 37.5 ml per minute. T-3 and T-4 were normal.

Since eosinophilia is related to antigen-antibody complexes, additional tests for the offending antigen were done. The clinical history did not identify the antigen. ASO titer was 100, and several tests for an antinuclear antibody were negative. V.D.R.L. was not reactive. No ova or parasites were seen in the stool. A skin test with P.P.D. was negative. There was no urinary tract infection. R.A. test was reactive, indicating the presence of antibodies to gamma globulin. Rheumatoid factor is contained in the immunoglobulin M and G fractions.[4]

Spirometric studies revealed a very severe loss in vital capacity, being 0.95 liters as compared to the normal value of 2.63 liters. She also had severe obstruction to air flow. Her FEV_1 was 0.60 liters.

The rash, edema, asthma, proteinuria, and eosinophilia was initially treated with prednisone, 40 milligrams a day. In addition, the patient was given isoproterenol with intermittent positive pressure inhalation four times a day for the asthma. Brompheniramine phenylepherine and propanolamine were prescribed for the sinusitis. Atypical pneumonia was treated with tetracycline. Dicoumerol was also given to prevent pulmonary embolization from the edematous legs.

Later, a subtotal thyroidectomy was done for what appeared to be a solitary nodule. Microscopic examination of this revealed a multinodular goiter and resolving thyroiditis. No arteritis was seen.

Discussion

Loeffler's syndrome is considered a benign condition which responds well to corticoid therapy. The underlying disease may be much more serious.[2] Eosinophilia ordinarily appears in the course of any disorder producing antigen-antibody complexes. The antigen can be of foreign or autologous origin, so there is an enormous array of possible antigens. In this patient the cold agglutinin test was reactive 1:64, a little above normal. Mycoplasma pneumonia infections can produce elevated cold agglutinin titers, but this patient's titer is not convincing evidence of this infection. Cold agglutinins are also present in certain types of acquired hemolytic anemias, but she was not anemic. No foreign antigen was identified. There was a reactive R.A. test and thyroiditis, and these findings indicate an autologous origin.

The positive R.A. test indicates the presence in the blood of an antibody to gamma globulin. Antibodies to gamma globulin are frequently found in rheumatoid arthritis. This antibody to gamma globulin may result from cross immunity.[3] An example of this is the antibody to a carbohydrate component in the wall of the group A streptococcus. This particular antibody also reacts with a structural glycoprotein of the heart valve. The antibody to group 12 streptococcus also reacts with human glomerular basement membrane. There are several other known cross reactions.

Phagocytosis of antigen-antibody complexes by leukocytes results in degranulation of the leukocyte and release of lysosomal and other hydrolytic enzymes. These enzymes can injure vascular endothelium. Vasculitis results in small vessels where antigen-antibody complexes precipitate. Because of the relatively large blood flow through the kidney, much of the damage is done here. I think the lung could be damaged in the same way.

Prednisone is used because it stabilizes lysosomes. It also suppresses the sticking of leukocytes to endothelial surfaces, thus diminishing the accumulation of leukocytes at sites of tissue injury. Also, as in this case, the inhibitory effect on antibody production is desirable.

This patient has responded well to treatment for rheumatoid disease, but she has not completely recovered. Her disease becomes life-threatening if her medication is discontinued. She still has albuminuria and hypercholesterolemia. At monthly visits her response to a low cholesterol diet, thyroid gr two daily, and prednisone ten mg every other day, is evaluated. Her symptoms are reviewed and she is examined for any adverse change in weight, blood pressure, pulse rate, and respiration. •

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Arterial ligation for control of epistaxis

Stephen A. Kramer, MD, Billings, Montana

Arterial ligation should be considered for posterior epistaxis which does not respond to the usual methods of posterior and anterior packing or which is recurrent. Anterior ethmoid and maxillary artery ligations are described.

If Charlie Brown of "Peanuts" fame were a practicing physician, he would undoubtedly agree that happiness is an anterior nosebleed. This type of epistaxis is so readily controlled by various methods of local treatment that it receives scant attention in medical literature. However, treatment of posterior epistaxis, bleeding from the more remote areas of the nose where the vessel at large cannot be seen, involves considerable morbidity and even some mortality. Although the primary and most reliable treatment remains posterior and anterior gauze packing, alternate methods are continually being suggested in an attempt to reduce discomfort to the patient. During the past 35 years, snake venom, salt pork, radiation, cryotherapy, and injection of vasoconstrictors have all been tried. Some people use inflatable balloons of various types instead of gauze for the posterior portion of the packing. Occasionally, bleeding will continue to recur despite the foregoing methods, and then interruption of the major blood flow to the nose must be considered. Commonly, when this becomes necessary, the homolateral external carotid artery is ligated. In recent years it has been advocated that, if ligation is necessary, it is more reasonable to interrupt the branches of the external and internal carotid arteries just as they enter the nose.

It is the purpose of this paper then to describe ligation of the anterior ethmoid artery and transantral ligation of the maxillary artery.

Anatomy

The internal maxillary, or maxillary artery (Fig. 1), through its terminal branches, the sphenopalatine and posterior nasal arteries, is the major source of the blood to the posterior nose. The third portion of the maxillary artery, with its seven branches, is located in the pterygopalatine fossa, a space bound anteriorly by the posterior wall of the maxillary antrum, posteriorly by the anterior face of the sphenoid bone, medially by the lateral wall of the nose, and laterally by the pterygomaxillary fissure. This space also contains the maxillary nerve. The largest branch of the maxillary artery is the descending palatine which, after it traverses the palate, anastomoses with the sphenopalatine artery through the incisive foramen.

The anterior ethmoid artery (Fig. 2), a branch of the ophthalmic division of the internal carotid artery, supplies the anterior-superior portion of the nose. It comes forward in the orbit before turning medially to enter the nose through the anterior ethmoidal foramen (Fig. 3). This foramen is usually

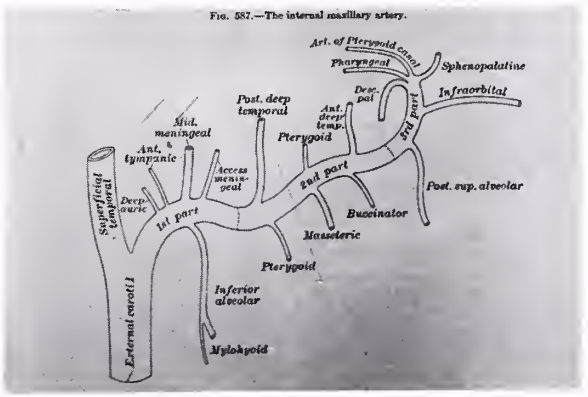

Fig. 1. From Gray's Anatomy, 18th English Edition, 1913, page 639.

located in the fronto-ethmoidal suture line, approximately 14-18 millimeters back on the medial orbital wall from the junction of the lacrimal bone, frontal bone, and frontal process of the maxilla, a point which is just above the lacrimal sac. The anterior ethmoid artery makes an anastomosis with the posterior nasal artery.

Surgical Technics

A Waters' view of the sinuses is necessary before attempting the transantral approach to the maxillary artery because, in a small per cent of patients, the antrum will be so small as to preclude this approach. Once the maxillary sinus has been shown to be of average size, local or general anesthesia may be used. A buccal-gingival incision is made, as in the Caldwell-Luc procedure, and a wide opening is made in the anterior face of the antrum. A large inferiorly based flap is then made of the mucosa of the posterior wall of the sinus and the posterior wall is then removed with chisels, rongeurs, or curettes. At this point, the operating microscope with a 300 millimeter lens is brought into the field. Dissection is then carried out in the fat of the pterygopalatine fossa, identifying the branches of the maxillary artery and interrupting their flow with either silk ligatures or vascular clips (Fig. 4). The most important vessels are the terminal branches, the sphenopalatine and posterior nasal arteries, and the descending palatine because of its anastomotic connections. The procedure is terminated by replacing the mucosal flap over the posterior wall defect and by closing the buccal-gingival incision. Intranasal drainage is not necessary.

The anterior ethmoid artery is approached through an incision which begins at the medial end of the eyebrow, curves down along the side of the nose midway between the dorsum of the nose and the inner canthus of the eye, stopping at a point just below the level of the inner canthus (Fig. 5). The periosteum of the medial wall of the orbit is then dissected from the bone and the orbital

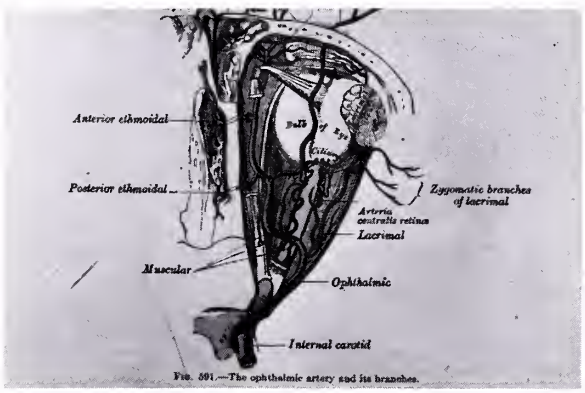

Fig. 2. From Gray's Anatomy, 18th English Edition, 1913, page 649.

Fig. 3. The anterior ethmoid foramen (arrow) as seen on a dried skull. Posterior to it are the posterior ethmoid foramen and the optic foramen.

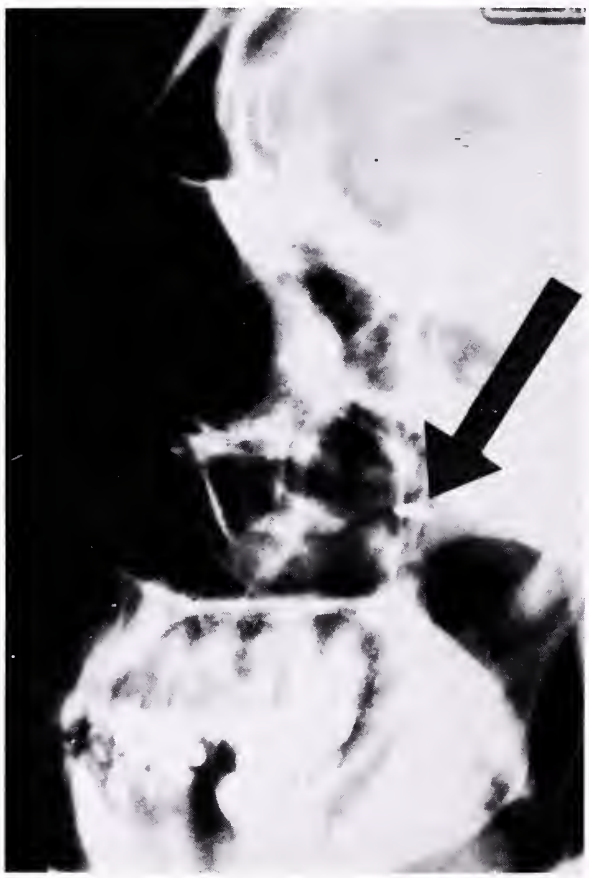

Fig. 4. Lateral x-ray of sinuses showing clips (arrow) in the pterygopalatine fossa.

Fig. 5. The usual incision for ligation of the anterior ethmoid artery.

contents are retracted laterally. When the anterior ethmoid artery is located entering its foramen, it is clipped or ligated, and the wound is closed.

Indications

Arterial ligation is not a primary treatment for posterior epistaxis. It is indicated when standard methods of packing fail to control bleeding, or when a patient has recurrent episodes of posterior epistaxis. Less commonly, it may be required when a posterior pack causes symptoms of anoxia or when a patient, such as an alcoholic or a psychotic, is extremely difficult to manage with a posterior pack. In a study done at the Massachusetts Eye and Ear Infirmary,[1] it was determined that seven per cent of all patients with epistaxis who came to the hospital for treatment required posterior packs, and that of these people, only seven per cent required repacking. It is this latter small group of people, perhaps 0.5 per cent of all patients with epistaxis, with whom we are concerned.

When the decision is made to operate, both the maxillary and anterior ethmoid arteries should be ligated because if only one vessel is treated, the nosebleed may continue via anastomotic connections with the other major vessel.

Results

The usual result of this surgery is immediate cessation of bleeding. Rarely, bleeding will continue and this has been attributed to an anomalous blood supply or to the opening of clips. The latter problem may be avoided if a self-locking type of clip is used.

Summary

Anterior ethmoid artery ligation and transantral ligation of the maxillary artery provide a reliable and effective method of controlling epistaxis which does not respond to non-surgical measures. •

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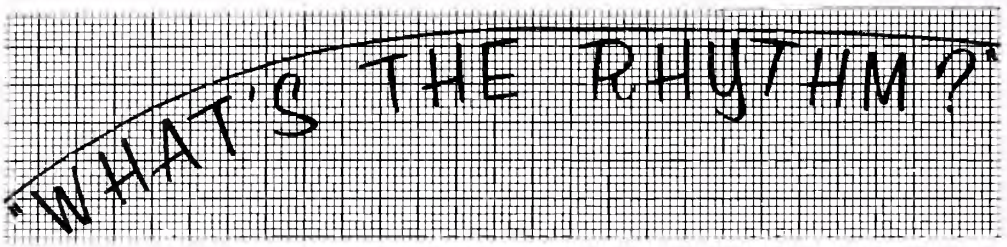


Prepared by Alan E. Lindsay, MD,* Salt Lake City, Utah

THE PATIENT: A 64-year-old male was admitted to a C.C.U. with an acute myocardial infarction. He had had elevated blood pressure for five years and two episodes of syncope during the three weeks before admission. Admission ECG showed typical inferior wall infarction, right bundle branch block, and a normal PR interval. Peak SGOT was 348.

His hospital course was stormy and complicated. It was punctuated by intermittent atrial arrhythmias, periods of slow A-V junctional rhythm, periodic ventricular tachycardia requiring cardioversion on numerous occasions, shock, and mental confusion. On the eleventh hospital day a transvenous electronic pacemaker was inserted so that drugs to combat ventricular tachyarrhythmia could be administered more liberally. He eventually recovered.

THE ELECTROCARDIOGRAMS: Three episodes of ventricular tachycardia, occurring during the fifteenth-sixteenth day of hospitalization, are depicted, all obtained by bipolar chest leads.

Strip "A" shows a relatively slow ventricular (or AV junctional) tachycardia (108/min) interrupting normal sinus rhythm. 1:1 retrograde (or V-A) conduction is suspected because of the notches (arrows) seen in the terminal portion of each QRS complex; the RP interval is 0.16 sec. Note also that the firing schedule of the SA node is disrupted and that AV dissociation is not present.

In Strip "B" the ventricular focus has apparently changed (different QRS morphology) and the ectopic rate is slightly more rapid (120/min). Pauses are terminated by electronic pacemaker escapes ("P"). Retrograde P-waves are indicated by arrows. The gradually increasing RP intervals (shown in the AV level of the diagram) indicate progressive retrograde block *(retrograde second-degree block of the Wenckebach type)*—i.e., there is a progressive lengthening of V-A conduction until retrograde atrial stimulation fails to occur. The Wenckebach pause, of course, occurs only at the atrial level.

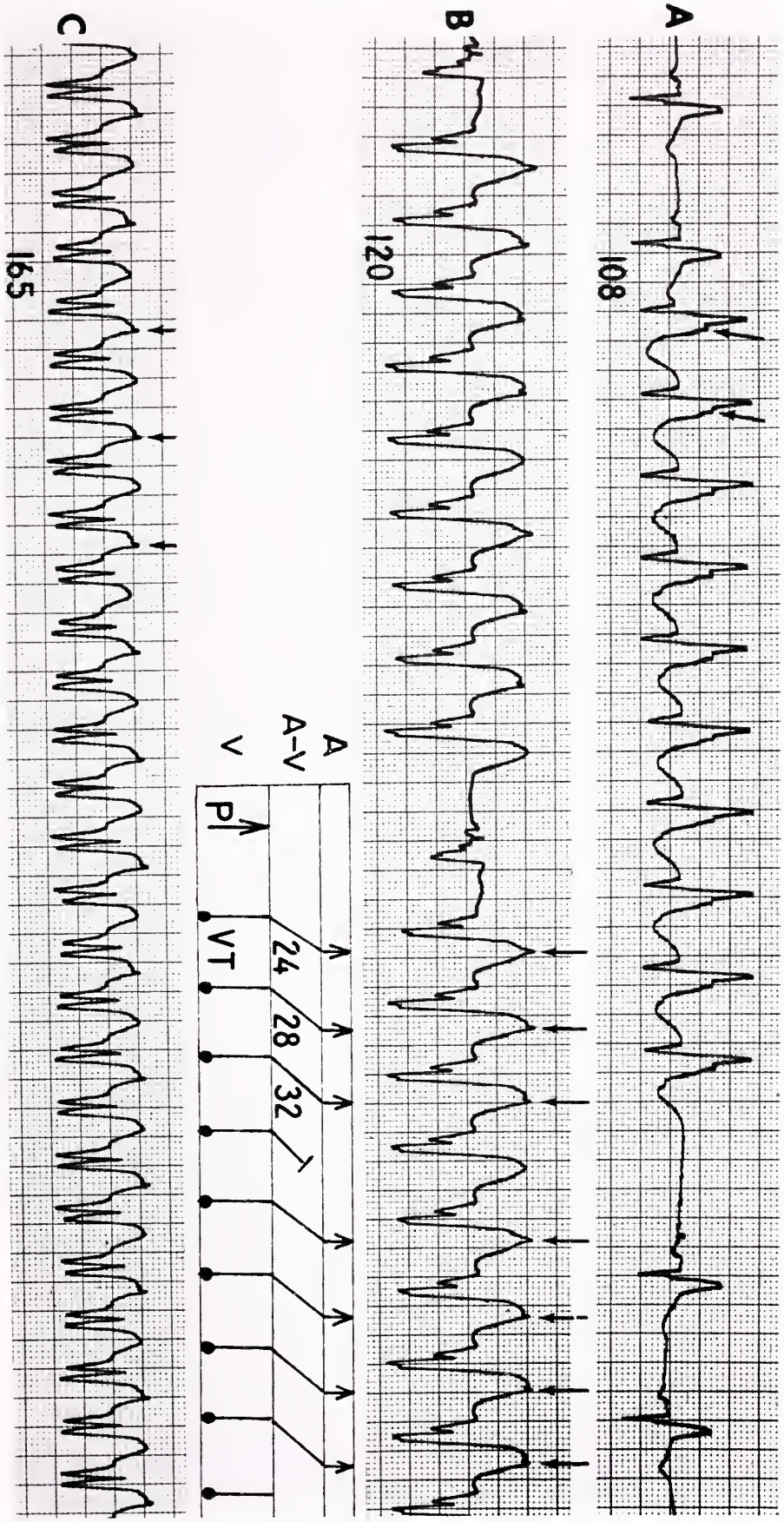
The rate of the ventricular focus in Strip "C" is even faster (165/min) and now only 2:1 V-A conduction can occur.

THE IMPLICATION: These three tracings illustrate *retrograde (V-A) block*, the degree of which is rate-dependent. Rate-related *anterograde (A-V) block* is quite frequently seen. A common example is when atropine is given to a patient with IWMI and first degree AV block; when the atrial rate is increased by the drug, second-degree A-V block may occur and result in a slower ventricular rate.

Retrograde conduction to the atrium from a ventricular focus occurs more often than is generally thought, but only occasionally can it be detected as clearly as this in a surface ECG lead.

The practical point to consider is that in a case like this, where a slower dissociated atrial rate is not present, bed-side signs of AV dissociation (varying first heart sound, varying pulse volume, "jugular jumps", etc.) will be absent. •

*Dr. Lindsay is scientific editor for Utah of the *Rocky Mountain Medical Journal.*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Fat embolism

Current concepts and report of two cases

H. C. Habein, Jr., MD, Billings, Montana

FAT EMBOLISM IS A condition in which fat appears in the serum in droplets large enough to occlude arterioles and capillaries. Usually fat embolism occurs after major fractures, such as those of the femur, tibia, or pelvis. The syndrome may occur in other conditions, such as burns, sickle-cell disease, cardiopulmonary by-pass, renal transplantation, and acute pancreatitis.[1] Among many reports of fat embolism following trauma, the incidence has varied from six per cent to 60 per cent. It is a major cause of morbidity and mortality. Since there are presently no consistently reliable objective signs or laboratory aids, the diagnosis of fat embolism requires a high index of suspicion and an awareness of the clinical pattern. Furthermore, diagnosis is important because by proper management morbidity and mortality can be reduced.

Historical Aspects

In 1865, Wagner[2] described certain pathologic features of fat embolism, and in 1873 VonBergman[3] made the first clinical diagnosis. Fenger and Salsbury,[4] in 1879, reported the first American case, their patient dying with respiratory symptoms. In the same year, Reidel[5] reported finding fat droplets in the urine in patients with fractures. Payr,[6] in 1900, differentiated between pulmonary and cerebral forms of fat embolism. Killian[7] described 112 fatal cases in 1911, and Mallory,[8] in 1950, reported finding fat embolism in 65 per cent of World War II wounded dying of shock.

Pathophysiology

The source of embolic fat has not been definitely established.[9] The two prevailing theories postulate (1) mechanical factors, and (2) physiochemical alterations in the emulsion stability of fat in the blood. Most cases of fat embolism follow fractures. It is believed that non-collapsible osseous veins remain open and patent to fat which gains access to the circulation as soon as the pressure from hemorrhage and exudation at the fracture site rises above the venous pressure. Several authors have noted the high incidence of fat droplets in the serum of patients undergoing orthopedic procedures on long bones. That much of this fat is filtered by the lungs was demonstrated by the finding of pulmonary fat embolism in 95 per cent and systemic fat embolism in 23 per cent of a group of 643 patients who died as the result of trauma.[10]

The mechanical theory does not, of course, explain fat embolism which occurs in pathologic states other than fractures. Certain investigations have provided strong support for a relationship between blood coagulation factors and the alteration of fat stability in the serum.[11] In addition, a lipid mobilizing hormone has been isolated.

Just as the source of embolic fat is unclear, the toxic effects in the tissues have not been satisfactorily explained. One theory postulated the release of lipase in the pulmonary capillaries in the presence of free fat. The latter is changed then to fatty acids which have been shown experimentally to injure

capillaries and interfere with surfactant production and gas diffusion at the alveolar-capillary junction.

It is known that certain changes occur in the microcirculation, that is, in vessels smaller than 100u internal diameter, as the result of injury. These changes include aggregation of erythrocytes and increased viscosity resulting in inadequate perfusion. Evarts[11] believes that this, complicated by fat droplets in the blood, results in tissue hypoxia or anoxia and the fat embolism syndrome.

From the pathologic standpoint, the lungs show hyperemia, congestion, and alveolar hemorrhages and fat globules exude from the cut surfaces. Fat emboli are present in the pulmonary alveoli, capillaries, and arterioles and in the small vessels of the brain, kidneys, liver, and other organs.

Clinical Aspects

Fat embolism occurs in the young in whom long bone fractures are more common and in aged patients who are more apt to have hip and pelvic fractures. The onset varies from a few hours to three or four days, but 90 per cent of patients have signs or symptoms within 24 hours after injury. The syndrome may occur explosively and result rapidly in death. On the other hand, the manifestations may be vague and transient and consist only of low-grade fever. In either case clinical diagnosis is virtually impossible. There is, however, in many patients a characteristic pattern which, if properly evaluated, makes presumptive diagnosis and treatment possible. The patient is usually not hypotensive, the syndrome classically occurring after resuscitation from the original trauma is complete. Respiratory distress varies from none at all to severe dyspnea and tachypnea. In eight of 15 patients at the Mayo Clinic[1] the initial symptoms were those of cerebral dysfunction. Such symptoms include restlessness, irritability, combativeness, delirium, hemiparesis, stupor, coma, and decerebrate rigidity. Fever and tachycardia are usually present. Petechiae are usually mentioned prominantly in descriptions of the syndrome, but they occur in only 50 per cent of cases[12] and often fade rapidly. When present they are seen most often in the conjunctivae, axillary folds, and neck. Auscultation of the lungs may reveal bubbling rales and there may be evidence of increased venous pressure. Since the cerebral symptoms are protean, the objective neurologic findings may change rapidly.

From the laboratory standpoint, several studies may be helpful in the diagnosis of fat embolism. Unexplained anemia is often noted Free urinary fat apparently occurs in about 50 per cent of patients, and it may be present in patients without symptoms. Evarts[11] states that the examination of sputum for fat has not been helpful. Some authors have attached significance to a rise in serum lipase which Evarts says occurs in 50 per cent of patients. In the absence of significant thoracic injury and chronic lung disease, determination of the partial pressure of arterial oxygen is of great value. The $Pa0_2$ may be surprisingly low even in the absence of clinical signs of desaturation. It is felt by some[13] that $Pa0_2$ values repeatedly below 50 to 55 mm Hg. within 72 hours of injury may be the earliest reliable sign of pulmonary fat embolism. In addition, serial determinations of $Pa0_2$ are of help in monitoring therapy.

Thoracic roentgenograms are of value in most cases and classically show diffuse infiltrates in portions of one or both lungs. Roentgenographic manifestations may, of course, be variable and are often difficult to interpret in the presence of associated thoracic trauma. The electrocardiogram may or may not show evidence of pulmonary hypertension and right heart strain.

Differential Diagnosis

The differential diagnosis of fat embolism may be complicated in the presence of multiple injuries with extensive trauma. The respiratory symptoms may be confused with those resulting from lung contusion, pleural complications of trauma, pneumonia, and pulmonary embolism. The cerebral symptoms may be thought mistakenly to be due to craniocerebral trauma. In the latter the pulse and respiratory rates are more likely to be slow, and the onset of coma is usually gradual. Neurologic findings in fat embolism may be bizarre and change rapidly, whereas,

in the presence of intracranial bleeding, localizing signs are usually present. Other conditions such as diabetic coma, traumatic shock, and uremia may rarely cause difficulty in diagnosis.

Therapeutic Aspects

One of the chief points of contention in the controversy surrounding the fat embolism syndrome is the problem of what causes the cerebral symptoms. Peltier[14] and others,[1] believe that the cerebral symptoms are due to hypoxia secondary to pulmonary involvement. They state that "fat embolism is a pulmonary emergency". Sevitt[15] and others consider the cerebral symptoms to be due to fat emboli in small vessels of the brain which in turn cause hemorrhagic and ischemic changes in the cerebral tissue. Apparently the emboli reach the left heart via a patent foramen ovale or through pulmonary arteriovenous shunts.

The concept that fat embolism is usually a "self-limited pulmonary disease" implies a more optimistic prognosis and serves to stimulate enthusiasm for vigorous therapeutic measures. The presence of arterial hypoxemia may be easily confirmed by blood gas determination. Peltier and others[13] believe that early and repeated study of the $Pa0_2$ and $PaC0_2$ are essential to the diagnosis and management of the fat embolism syndrome. These authors feel that since the symptoms are due to hypoxemia, the basis of therapy should be the administration of oxygen through a cuffed tracheostomy tube. Effectiveness of treatment and the time of discontinuance is based upon serial $Pa0_2$ determinations.

Various other therapeutic measures have been advocated for fat embolism. Corticosteroids have been helpful in severe respiratory insufficiency apparently by their "anti-inflammatory" effect on the lungs. Low molecular weight dextran is believed by many to be of value in reducing blood viscosity and thereby improving tissue perfusion. Heparin is usually recommended despite the lack of any data to indicate that it significantly alters the course of the disease. Evarts[11] and others state that heparin has a "chylolitic action" and that, in addition to removing fat from the blood, the anticoagulant effect improves microculatory flow. Similarly, intravenous alcohol has appeared to be of value in some cases, and Peltier believes that both heparin and alcohol should be used.

CASE REPORTS

Case 1. A previously healthy 61-year-old man fell eight feet from a scaffold and sustained a compound, comminuted fracture of the proximal left tibia and fibula (Fig. 1). He was given morphine and tetanus toxoid, and the leg was placed in an air splint. He was sent by ambulance to Billings. General examination was negative except for a small abrasion on the left shoulder and an ecchymosis around the left eye. Routine urinalysis was negative, and the hematocrit was 43 per cent.

Soon after admission to Saint Vincent's Hospital in Billings, Montana on the day of injury, the compound fracture wound was cleansed and debrided, the fracture reduced, and balanced skeletal traction was established. No tourniquet was used. The following day the leg was tense and edematous, but sensation was normal, pedal

Fig. 1. Case 1. Photograph of x-ray showing comminuted fracture of proximal tibia and fibula.

pulses were normal, and the leg and foot were warm. At this time the blood hemoglobin was 12.2 grams per 100 cc, and the hematocrit was 39 per cent. The edema decreased over the next two days and the hematocrit remained stable. Seventy-two hours after injury and about 60 hours following manipulation of the fracture, the patient developed lethargy and mild confusion. His lips and nail beds were dusky. The blood pressure was 160/90 mm Hg and the pulse rate 96 per minute. Conjunctivae and fundi appeared normal, and the neck was supple. Cardiac rhythm was regular. There was a pulmonary ejection murmur, and the second pulmonary sound was more forceful than the aortic second sound. A few scattered rales were audible over both lungs, and the breath sounds were decreased on the right. One examiner noted the questionable presence of petechiae in the axillary folds. A chest roentgenogram showed an infiltrate in the right lung and fluid in the major fissure (Fig. 2). On the fifth day the patient became markedly confused, disoriented, and combative. The color of the skin and nail beds was normal. The heart rate was rapid. Petechiae were present in the pectoral areas. Blood hemoglobin was 11.6 grams per 100 cc, hematocrit 37 per cent, and leucocyte count 11,600. Urinalysis showed no fat droplets. Blood glucose was 140, BUN was normal, and serum calcium 8.3 mgm per 100 cc. Blood gas studies showed $Pa0_2$ 51 mm Hg, $PaC0_2$ 38.5 mm Hg and pH 7.480. At this time heparin was given and tracheostomy carried out. Ventilatory assistance was provided by a Bird respirator, and corticosteroids were started. The patient's general condition improved and he became quieter. The following day he seemed lethargic but answered questions by nodding his head. The $Pa0_2$ increased to 70 mm Hg. Low molecular weight dextran was added to the regimen. On the third day after tracheostomy and the eleventh day after injury, the patient's sensorium was much clearer and the $Pa0_2$ was 183 mm Hg while he was being ventilated with 40 per cent oxygen. The ventilator was removed, and the following day his sensorium was clear and the $Pa0_2$ was 90 mm Hg while breathing oxygen. On the thirteenth day after injury the tracheostomy tube was removed. Subsequently the wound over the left knee was skin grafted. Three weeks after injury open reduction and internal fixation of the tibia were accomplished. Following this procedure he developed supraventricular tachycardia which responded to the administration of digitalis. The patient was dismissed on crutches from the hospital 35 days after admission.

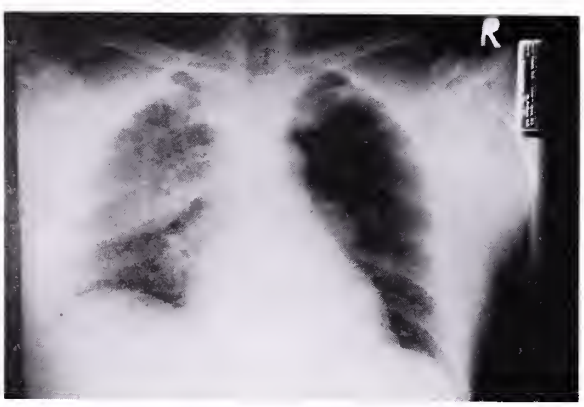

Fig. 2. Case 1. Photograph of chest x-ray made 72 hours after injury and showing right pulmonary infiltrate.

This case illustrated two particularly important aspects of the fat embolism syndrome. First, the absence of clinical cyanosis despite a markedly reduced $Pa0_2$. Secondly, the remarkable response of the patient's cerebral symptoms and general condition to tracheostomy, assisted ventilation, and other measures was most gratifying.

Case 2. An 86-year-old man was a passenger in an automobile which was involved in an accident. He had been briefly unconscious following injury, but in the emergency room he was lucid and oriented. The blood pressure was 110/60 mm Hg, and the pulse rate 110 per minute and irregular. There were multiple lacerations and abrasions of the face and nose, left wrist, hand, and shoulder, and abrasions and a hematoma over the left frontal and temporal regions. The pupils were normal. Examination of the heart showed an irregular rhythm and tachycardia, but no murmurs

Fig. 3. Case 2. Photograph of x-ray film showing fracture of left innominate bone.

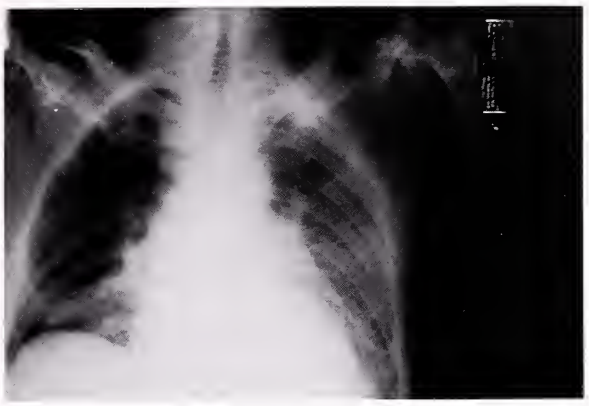

Fig. 4. Case 2. Photograph of chest x-ray showing fracture of left second rib, cardiac enlargement, and bilateral pulmonary infiltrates.

and no rales were audible over the lungs. The blood hemoglobin was 14.8 grams per 100 cc and the hematocrit 42 per cent. Leucocyte count was 23,500. Urinalysis showed no abnormalities. A roentgenogram of the chest showed a fracture of the left second rib and x-ray of the pelvis revealed fracture of the left innominate bone (Fig. 3). Skull x-rays were negative for fracture. Electrocardiogram showed atrial fibrillation. A urethral catheter was inserted, Bucks traction established, and one unit of whole blood was transfused. Following this the patient's condition stabilized.

On the day following injury the patient was oriented and his sensorium clear, but he was febrile and there were signs of congestive heart failure. Digitalis and antibiotics were started, and he was given 10 mgm of panwarfin by mouth. The second day the patient was noted to be more alert. Pulse rate was 84 per minute and irregular, and urine output was adequate. The BUN at this time was 37 mgm per 100 cc and the prothrombin time 38 per cent of normal.

By the fourth day the patient had hallucinations. Urine contained fat droplets at this time, and there were infiltrates in both lungs (Fig. 4). The $Pa0_2$on the fifth day was 52 mm Hg, and the urine again contained fat droplets. On the sixth day $Pa0_2$ was 56 mm Hg, and oxygen was started by mask. The prothrombin time by then was 30 per cent of normal and remained at this level for the next several days without any further anticoagulant therapy. While breathing oxygen by mask the $Pa0_2$ was 80 mm Hg. No further treatment seemed necessary since his general condition gradually improved and his sensorium cleared. Transurethral resection of the prostate was required because of bladder neck obstruction after removal of the urethral catheter. Hospital dismissal was on the forty-seventh post-injury day.

This case illustrates some of the difficulties involved in situations of multiple injuries and pathologic states. It seemed to us that the patient's arterial oxygen desaturation was due to fat embolism. This would have been treated more vigorously had his condition worsened.

Summary

The fat embolism syndrome is characterized by diverse manifestations. Since there are at present no consistently reliable objective signs, the diagnosis is a clinical one and requires a high index of suspicion on the part of the physician. Properly applied therapeutic measures can lower the morbidity and mortality associated with this condition. •

ACKNOWLEDGMENT

Thanks are due Peter V. Teal, MD, Department of Orthopedic Surgery, Saint Vincent's Hospital, Billings, Montana, for permission to report his cases.

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Microsurgery

A tool to provide more exacting standards

Donald E. Murray, MD, Missoula, Montana

Microsurgical technics are now available for many surgical disciplines. Operating microscopes, instruments, and technics are discussed.

MAGNIFICATION HAS OPENED new vistas and panoramas for the surgeon. Suddenly he is able to see structures which before were imperceptible. His 5-0 silk becomes a cable, his needles appear like bulldozers, and his fine technic becomes gross. The use of the operating microscope which can allow from 7-40 or more magnification is the tool to allow surgeons to have ever more exacting standards to allow a closer return to normal in a shorter time. Its use is not limited to one specialty—plastic surgeons, otolaryngologists, ophthalmologists, hand surgeons, neurosurgeons, vascular surgeons, urologists, and general surgeons have all found uses to which it can be put to great benefit.

Neurosurgeons have found the microscope indispensable for surgery of intracranial aneurysms, removal of acoustic neuromas, rhizotomies, cerebellopontine angle tumors, myelotomy, en plague meningioma, as well as microsurgical embolectomies. Use of magnification has improved recovery of peripheral nerve transection in both quality and speed of recovery. In secondary nerve dissections, separation of scar and nerve is facilitated. Tendons have been approximated better. Thumbs have been reimplanted. In eye surgery corneal transplants are improved, cataracts removed with less surgical reaction, and foreign bodies are found easier. Otolaryngologists have found it useful for tympanoplasties, fenestrations, stapes mobilizations and replacements, tube insertions, and for more accurate visualization of the vocal cord lesions. Pediatric surgeons have found it beneficial in identification and repair of all parts of the body, being of particular help in finding the common duct. Reapproximation of the vas deferens and the Fallopian tubes is more likely to succeed. Anastomoses of vessels less than 2 mm in diameter have a higher success rate. Thus fingers and thumbs can be saved or a vascular pedicle to a composite graft reanastomosed without delay.

Use of the microscope is indicated in all procedures requiring greater accuracy and resolution than afforded by the unaided eye. The research potentials are limited only by one's imagination. What previously required large animals can now be done on small animals which in turn can have more select breeding. Transplantation of organs besides those with large vessels, such as kidneys and hearts, are now possible.

History

As early as 1921 monocular dissecting microscopes were used by Maier and Lion to perform labyrinthine procedures on animals.[2] The first to explore its use clinically were the otolaryngologists who found the middle ear amenable to surgery. Nylen[3] in 1921 and Holmgren[4] in 1923 used the operating microscope for labyrinthine fistulas and fenestration respectively. Improvements in the scope resulted in further applications. In 1960 Jacobsen and Suarez,[5] using a binocular operating scope, had 100 per cent success in small blood vessel anastomosis. They applied this technic to coronary endarterectomy, middle cerebral artery endarterectomy, and ureteral reconstruction. Buncke and Schultz[6] in 1964 developed instruments and technics to reliably anastomose vessels of less than 1 mm external diameter. Since, the applications and number of operators using the scope has expanded greatly.

Instrumentation

A look at what is needed to do microsurgery is in order. Of prime importance is the microscope. The microscope most widely used is the Zeiss operating microscope. This comes in a variety of models varying from a single binocular scope to a triploscope devised by O'Brien[7] of Melbourne so three people can see and operate at once. These scopes are built to allow attachment of observer tubes and cameras for closed circuit television, movies, or still photographs. Each eye piece is adjustable to allow for individual variation, but if there are two or more operators or observers, each still sees the same field. The scopes can have power zoom features. In recent years other microscopes have been made by other companies—particularly Weck,[a] Codman & Shurtleff[b] and Xonix.[c] Codman & Shurtleff's scope can be attached to the operating table while Xonix's is worn like a head lamp.

Instruments need to be small and easily operated. A needle holder which can be opened and closed without movement is necessary (Fig. 1). Several models are available including one hydraulically operated using a foot pedal. Of most widespread use is an Castroviejo-type needle holder. Small scissors likewise can be borrowed from the ophthalmologists. A most useful scissors is a Vannas model. Other instruments would include small retractors (made from 30 gauge needles), clamps, and forceps (Fig. 2). Jeweler's forceps of 3 or 3-C are ideal. Small-toothed forceps such as Castroviejo's in 0.12 mm are again available from the ophthalmologists (Fig. 3).

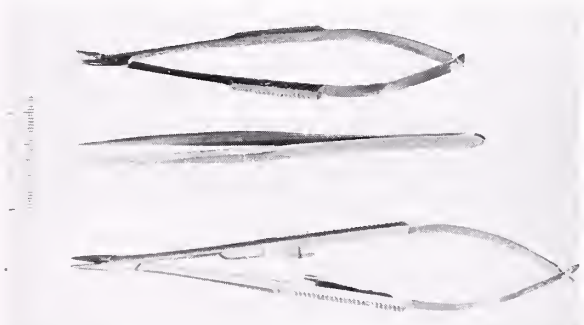

Fig. 1. Needle holders from top: Troutman, modified jeweler's, Castroviejo.

a. Weck, Inc., Long Island City, New York.
b. Codman & Shurtleff, Inc., Randolph, Massachusetts.
c. Xonix, Inc., Waltham, Massachusetts.

Suture of 8-0 to 10-0 nylon is available with attached needles from several companies. Ethicon* was an early pioneer and now has suture of 10-0 nylon on a tapered curved needle, curved cutting needle, or a tapered straight needle. A special needle which is deposited on the suture tip has been developed by W. Schultz (Fig. 4). For nerves the GS-9* needle is good and for vessels the BV-2* needle.

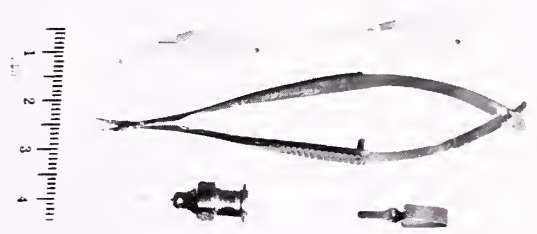

Fig. 2. Vannas scissors, clamps, and retractor.

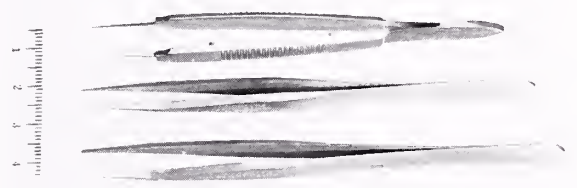

Fig. 3. Forceps from top: Castroviejo, jeweler's "3-C", modified jeweler's "3".

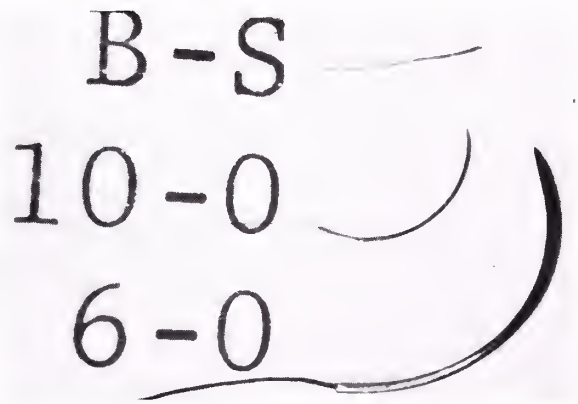

Fig. 4. 10-0 nylon on Buncke-Schultz needle, 10-0 nylon on BV-2 needle, and 6-0 nylon on P-1 needle.**

*Ethicon, Inc., Somerville, New Jersey.

Technic

Prior to attempting a clinical application, practice is necessary. No radically different technics are needed but one must be familiar with the microscope and instruments and what happens when they are used. Of prime importance for successful application is gentleness. The 10-0 suture breaks by forces which for other sutures would be infinitesimal. Pulling on a blood vessel ruptures the intima and subsequently causes thrombosis. Crushing the edge of the vessel by forceps causes necrosis with resulting thrombosis. There can be only minimal tension on a completed anastomosis for success.

To obtain the necessary gentleness, the surgical team must be seated and comfortable. Both wrists and forearms should be supported. Feet should be on a support. A back to the stool is helpful.

Manipulation of the instruments is by the fingers. Wrist and forearm motions are too gross. Depth of field is limited and one soon learns to operate on a flat plane. Knots should be tied by instruments which are kept in the field of magnification to allow better appreciation of the tension applied. Other aids, particularly for vascular anastomoses, include a rubber background (from a rubber glove) or similar surface. A *white* towel to contrast with suture color helps find the suture and protect it from being caught on projections of tissue.

To perform a vascular anastomosis of less than 1.5 mm the following steps are usually necessary. Proximal and distal clamps are applied. The vessels are irrigated gently with heparized saline to remove all clots. The ends of the vessels are inspected and if not sharp, trimmed. Stay sutures of 120° are placed through all layers of the vessel. The anterior wall is completed with three or four more interrupted sutures. The vessel is then rotated with the stay sutures and the posterior wall completed with four or five interrupted sutures. Care must be taken to insure the opposite wall is not included, as well as keeping any extraneous interstitial tissue out of the suture line. All sutures are cut, the distal clamp removed, followed by the proximal clamp (Fig. 5). Just before removal of the last clamp, wrapping a rubber background around the vessel and holding it there with a small clamp for five minutes decreases the amount of bleeding. Care must be taken not to compress the vessel. This is then removed.

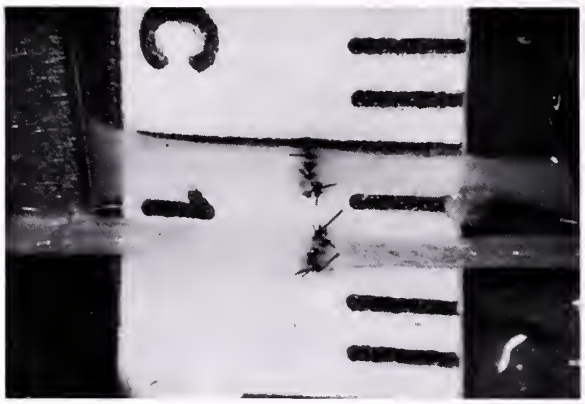

Fig. 5. Completed arterial and venous anastomosis in 1 mm vessels.

A nerve suture under the microscope is rewarding. The funicles can be individually identified and sutured to its mate by one suture. After proper alignment of the funicles, the epineurium is sutured using two stay sutures 180° apart and then running a continuous suture both anteriorly and posteriorly.

Summary

Microsurgery has much to offer. As yet its indications have only been partially explored. The uses of the microscope are unlimited. However, it is not necessary for all operations. Operations under the microscope are more time-consuming and thus should be reserved to those in which one can get an appreciably better result or those which could not be accomplished without the scope. More widespread use is needed to fully realize its benefits. •

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Chronic suppurative chondritis and perichondritis*

Report of two cases

James K. Wise, MD, Stanley W. Henson, Jr., MD, and Merlin G. Otteman, MD, Fort Collins, Colorado

Cartilage must be entirely removed or infection and sinus tract formation will recur. In selected cases a staged procedure may be successful.

CHRONIC SUPPURATIVE CHONDRITIS and perichondritis is a somewhat rare and distressing condition which usually presents clinically as a persistent and painful sinus tract or ulcer of the anterior chest wall in close proximity to a costal cartilage. It may appear after surgical trauma that has been complicated by infection or was followed by high doses of irradiation.[1,2] When it occurs spontaneously, it is most frequently associated with tuberculosis and it is thought to originate secondarily to infected mediastinal lymph nodes.[3]

The pathogenesis appears to be a destruction of the perichondrium either by infection or irradiation. This is followed by necrosis of the underlying cartilage, which then acts as a foreign body until it is removed. A sinus tract or ulcer results, and it may become infected with a variety of pyogenic organisms.

This condition is relatively rare and the seriousness of the lesion is not generally appreciated. Inadequate therapy is almost certain to be followed by a recurrence of infection and sinus tract formation. It was felt that our experience with two such cases should be added to the limited literature on this subject.

*From the Department of Surgery, Poudre Valley Memorial Hospital, Fort Collins, Colorado.

CASE REPORTS

Case 1: A 55-year-old white female complained of a chronically infected and extremely painful ulcer of the anterior chest wall. It had been present since she had left radical mastectomy for carcinoma of the breast, followed by x-ray therapy.

Examination revealed a deep, infected ulcer 5 cm in diameter involving the manubrium and gladiolus and the cartilagenous portions of the first, second, and third ribs on the left and the second and third ribs on the right.

At surgery an extensive surgical procedure was done in which most of the manubrium and gladiolus and all of the cartilage of the involved ribs, together with the infected soft tissues and sinus tracts were excised leaving large portions of the pleura, pericardium, and thymus exposed. The right breast was mobilized and prepared as a pedicle flap graft and sutured over the defect. A pressure dressing was applied.

The wound healed primarily and the postoperative course was uneventful. The patient was dismissed from the hospital on the ninth postoperative day and has remained well and free of pain throughout her convalescence. She has had no recurrence of infection or pain.

Case 2: A 26-year-old veterinary student accidentally injected his left anterior chest wall with hog cholera vaccine while vaccinating pigs. Localized pain and swelling was followed by a persistent, very painful sinus tract leading from the cartilage of the left fifth rib to the surface of the skin. Treatment with antibiotics, irrigations of the sinus tract, and finally debridement and packing of the wound had been unsuccessful.

When first seen there was a small ulcer located just beneath the left areola which was draining purulent material. Culture of the wound grew out pseudomonas aeruginosa. At surgery the ulcer, sinus tract, costal cartilage, and a short segment of the fifth rib were excised, followed

in ten days by the application of a split thickness skin graft. Unfortunately a sinus tract recurred from a small portion of the cartilage, which had been overlooked, adjacent to the sternum. This was subsequently excised and the wound promptly healed. The patient remained free of pain throughout an uneventful convalescence. There has been no recurrence of the infection or sinus formations.

Comment

The vulnerability of hyalin cartilage to infection has long been recognized. This is due to its limited blood supply which may be further compromised by irradiation. Once cartilage is exposed in an infected field, the previously described process of perichondritis, necrosis, and foreign body reaction ensues.

Partial excision of an infected cartilage is invariably followed by recurrent infection in the remaining cartilage, even though the exposed area appears healthy and is meticulously covered by soft tissue. For this reason treatment should include not only excision of the sinus tract and involved soft tissue but also excision of the entire cartilage and a portion of the rib or sternum if the infection extends to either of these bony structures. Bone, with its rich vascular supply, can be partially excised, or the infected area can be curetted away and covered with healthy soft tissue, with primary healing anticipated. Cartilage, however, must be entirely removed or infection and sinus tract formation will recur.

When an infected cartilage is one of those making up the costal arch, the entire arch on the involved side must usually be removed. In selected cases a staged procedure may be successful in saving a part of the costal arch.[4] The first stage is carried out through healthy, uninvolved tissues. A segment of normal cartilage is excised which interrupts the continuity between the infected cartilage and the costal arch. If and when primary healing is obtained, a second procedure can be done excising the infected segment without exposing the previously isolated costal arch.

When the resulting defect is large, pedicle grafts or sliding flaps must be used to cover them. Split thickness grafts may be successful but they do poorly on postirradiated tissue. •

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Calcaneal apophysitis*

One of the growing pains of adolescence

C. O. Brantigan, MD, Denver, Colorado†

Growing pains are the bane of the family physician. Here's one that can easily be recognized and cured.

CALCANEAL APOPHYSITIS is one of the growing pains of adolescence. It is a common problem, seen fairly frequently in the military recruit population, and it has been seen in the author's general practice twice in the past six months. The disease is usually mild and consists of a self-limited pain in one or both heels. It is rarely discussed in the medical literature; in fact, there are no reports of this disease in the accessible medical literature within the past ten years. It is important that doctors, especially pediatricians and general practitioners, be aware of the disease because it is quite amenable to simple therapy, and the results of this therapy are gratifying.

CASE REPORT

A ten-year-old healthy white male was seen at the Medical Department, Fleet Anti-Submarine Warfare School, San Diego, California, for pain in his left heel. The pain was confined to the left heel and had been gradual in onset. His parents had noted a slight limp. His usual shoes were sneakers. Physical examination was remarkable only for a gait favoring his left foot and mild tenderness of the posterior calcaneus. X-ray (Fig. 1) showed fragmentation and sclerosis of the apophyseal line. These changes were more pronounced on the left than the right. Pain responded immediately to wearing a solid oxford type shoe with a substantial heel with sponge rubber between the boy's heel and the shoe. Vigorous activity was restricted. By the end of six weeks he was entirely asymptomatic and gradually able to resume full activity.

Calcaneal apophysitis usually occurs in children during the period of greatest growth and activity, ages eight to 12. It occurs far more frequently in boys than in girls. Children who are overweight and who wear sneakers or no shoes at all are particularly prone to develop this problem. Onset is slow. A previously active child will begin to avoid running. He may complain of discomfort in one or both heels. Parents dismiss the problem as a growing pain. However, as the disease progresses, the child develops a limp. Tenderness occurs over the posterior calcaneus and pain may radiate into the calf. At this point, though the diagnosis should be apparent, it is often missed. Calcaneal apophysitis is diagnosed most frequently in children who have persistent parents or easy access to x-rays. In Myererding and Stuck's series,[1] 25 per cent of the patients were sons of physicians. In all cases, symptoms disappeared when the epiphysis fuses, usually at age 17 or 18.

Discussion

Calcaneal apophysitis is the calcaneal analog of other adolescent injuries to open epiphyses. Traumatic malacia of the carpal semilimar bone, osteochondritis of the talus,

Fig. 1. X-ray of a patient with calcaneal apophysitis showing fragmentation and sclerosis of the calcaneal apophysitis with irregularity of the epiphseal line. See text for significance of these findings.

*Apophysis and epiphysis are used interchangeably in this paper.

†The author wrote this paper while stationed with the Navy at the Medical Department of the Fleet Anti-Submarine Warfare School in San Diego, California. Dr. Brantigan has since resumed his residency training at the University of Colorado Medical Center. The opinions expressed herein are those of the author and cannot be construed as reflecting the views of the Navy Department or of the Naval Service at large.

osteochondritis of the cuboid, Legg Perthes disease, Freiburg's disease, and Osgood Schlatter's disease are some of the other members of the same family of diseases.[1,2] Each of the above epiphyses, however, has only one mechanism of injury. The calcaneus has two.

The calcaneal epiphysis is a traction epiphysis, and worse, it is an epiphysis without counter traction. The gastrocnemius, soleus, and plantaris all insert through the tendo achilles into the calcaneal apophysis. There is no counter balancing force pulling toward the toes. The routine function of maintaining one's balance requires tremendous stress on this epiphysis. The foot acts as a lever against the muscle. In vigorous exercise and in positions such as that of a baseball catcher the traction is worse. In addition the calcaneal epiphysis bears the full weight of the body. In fact it is the only epiphysis to do so before complete ossification—this anatomic situation makes it subject to direct trauma. Traction and trauma produce apophysitis.

The diagnosis must be primarily a clinical one. Classical reports describe characteristic x-ray findings[1,2,3,4] including sclerosis of the apophysis with fissuring and fragmentation. Flattening of the apophysis is described with irregularity and haziness of the epiphyseal line. There is a motheaten appearance to epiphyseal bone. Unfortunately roentgenographic studies of children with no heel symptoms show exactly the same findings. Ross and Caffey in 1957[5] showed that virtually all calcaneal apophyses in adolescents were sclerotic (perhaps this is due to the great traction placed on them). Fissuring was present in 107 of 161 studied. Of the 107, 37 had significantly more fissuring on one side than the other. X-rays are not a reliable way of making this diagnosis.

Differentiation of this problem from others causing heel pain in an otherwise well child is fairly easy. Bursitis of the subcutaneous bursa of the Achilles tendon usually produces more superficial tenderness. Bursitis underneath the Achilles tendon produces more sharply localized pain. Tenosynovitis of the Achilles tendon usually produces palpable crepitus with motion.

Treatment is simple and is directed at the mechanisms of injury. The child should wear shoes. He should refrain from vigorous activity. His sneakers should be replaced with a solidly constructed oxford with a good heel. A lift is nice but not necessary. Orthopedic shoes are usually not required. A solid shoe with a heel lessens the traction on the apophysis by relaxing the Achilles tendon. The child should use a heel pad of soft sponge rubber. This will elevate the heel higher and cushion the apophysis against direct trauma. The above treatment provides immediate relief, and after about six weeks the child can gradually resume full activity. After recovery he should be encouraged, however, to limit his use of sandals and sneakers.

The immediate and gratifying response to recognition and simple treatment makes calcaneal apophysitis a disease that should be known to anyone who cares for children. It must be mentioned, however, that there are rare recalcitrant children who require a plantar flexion cast for a few weeks for relief of symptoms.

Summary

Calcaneal apophyitis is a common problem for adolescent males. It is frequently dismissed as a growing pain. Though the disease is self-limited and does not result in permanent disability, its ease of diagnosis and gratifying response to simple treatment commends its addition to the body of general knowledge of the physician. •

ACKNOWLEDGMENT

The author wishes to thank Mrs. Joan Kline and the staff of the Medical Department, Fleet Anti-Submarine Warfare School, San Diego, California, for their help with this study.

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COLORADO

Dr. Kempe Elected to NAS Institute of Medicine

Dr. C. Henry Kempe, professor and chairman of the Department of Pediatrics at the University of Colorado School of Medicine, has been notified of his election to a five-year term in the Institute of Medicine of the National Academy of Sciences.

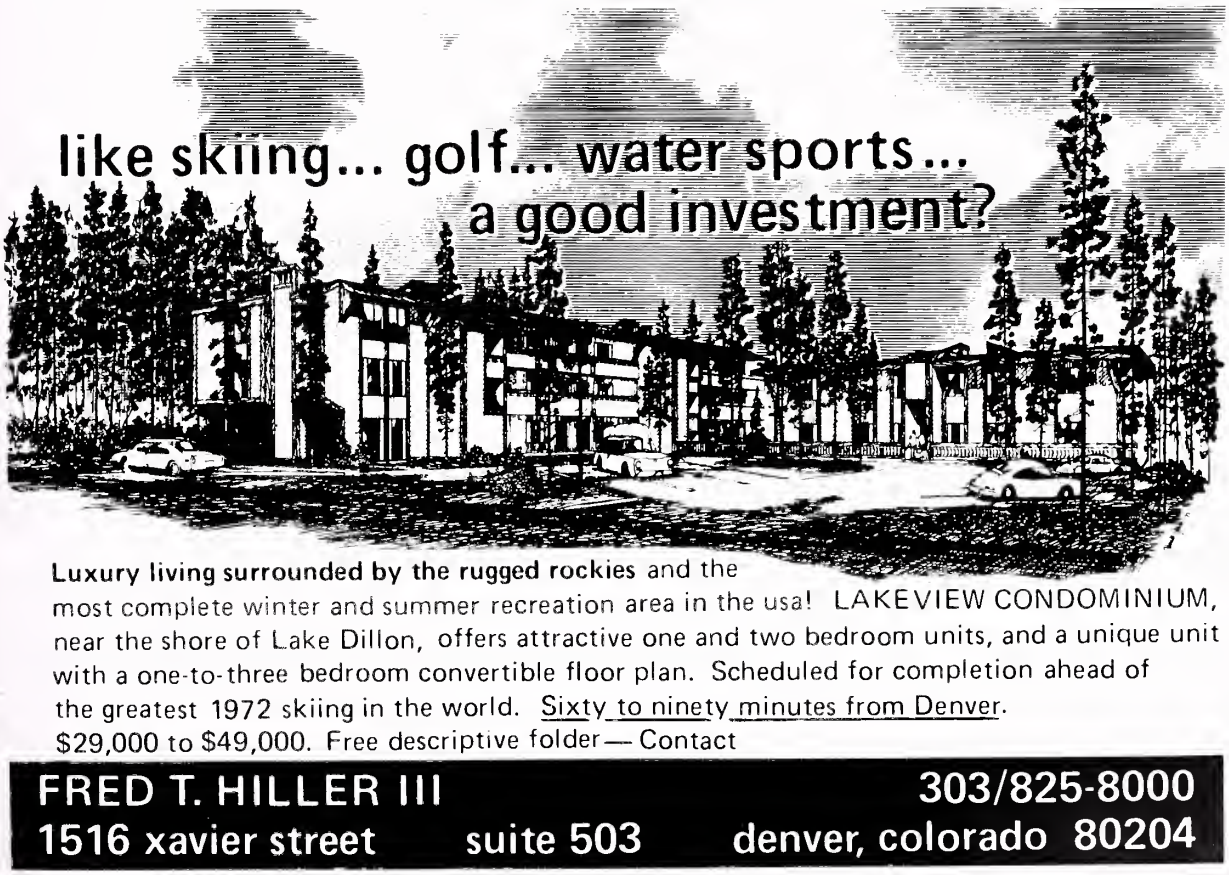
The Institute was activated in December 1970 to bring together distinguished leaders in the health professions for the purpose of guiding national policy in such matters as providing health care to the public, education for the health professions and sciences, and promotion of biomedical research and development.

A clinician-teacher-scientist of international reputation, Dr. Kempe has made major contributions to the health and welfare of children throughout the world. Prevention and treatment of child abuse has been a primary concern of his for over a decade. The most recent among his numerous publications in this field is *Helping the Battered Child* (Lippincott, $8.50), which he co-edited with Dr. Ray E. Helfer, a former member of the University of Colorado medical faculty and presently associate professor of human development at the University of Michigan College of Human Medicine.

Dr. Kempe was elected to membership by the Institute's 155 members and will be eligible for a second five-year term. He shares this honor with two other members of the medical faculty, Dr. Henry K. Silver and Dr. Loretta C. Ford.

Honored as Faculty Members

Members of the Colorado Medical Society were honored as faculty members at the annual banquet of the Medical Alumni Association of the University of Colorado School of Medicine. Those honored were Drs. Robert K. Brown, Roy L. Cleere, William B. Condon, Raymond Feldman, Joseph H. Holmes, John A. Lichty, Johann Marx, and E. Stewart Taylor.



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NEW MEXICO

Burn and Trauma Unit a Success

The Burn and Trauma Unit at the Bernalillo County Medical Center (BCMC), one of 20 such units in the country and the only one of its kind in the Rocky Mountain region, has much greater success with larger burns than is the national average, according to a recent report from the National Burn Information Exchange. The Unit is under the direction of Dr. Jerry M. Shuck, who is also associate professor of surgery at the University of New Mexico School of Medicine.

A total of 225 burned victims have been treated since the Unit opened two years ago. In the average burn unit, 82 per cent of the patients survive while the survival rate at New Mexico's Burn Unit is 88 per cent. For patients with similar extent of burns, the average hospital stay is 50 days; at BCMC patients are released after an average of 33 days. Only one case of bacterial infection has occurred in the Burn Unit since it opened; this is the lowest infection rate of any major burn center.

On a national scale the average percentage of burn in those patients who do not survive is 56.6 per cent of the body surface, while at the New Mexico Burn Unit the average extent of burned area on the non-survivors is 72 per cent of the body surface, an indication of the successful treatment of large burns at this Unit.

The BCMC burn unit is internationally known for its concept of combining care for burned patients as well as multiple injury (trauma) patients. The 18-bed unit permits a maximum use of the nursing staff by combining these types of cases into one intensive care unit.

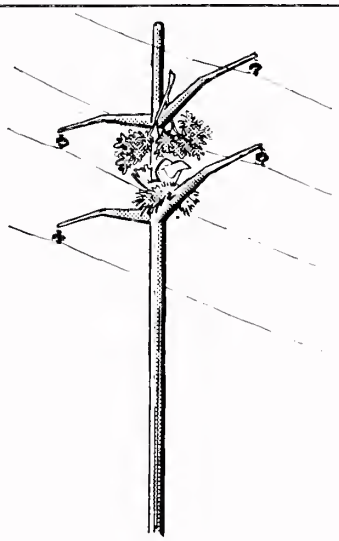
WYOMING

Sheridan Hospital Hooked to Cardiac Computer

Memorial Hospital of Sheridan County, which serves residents of five northern Wyoming counties as well as many people in southern Montana, has become its state's second hospital to gain access to a computer in Denver which will assist local physicians in diagnosing their patients' heart conditions. With the assistance of the Colorado-Wyoming Regional Medical Program (CWRMP), the 89-bed hospital has been linked to the Community Electrocardiographic Interpretive Service (CEIS) in Denver.

Electrocardiograms will be transmitted from the Sheridan hospital over long-distance telephone lines to the CEIS computer, which is under the direction of Dr. Robert V. Elliott. Within about five minutes, a complete computer analysis is transmitted back to the hospital via teletype.

The computer system, the only one of its kind in the Rocky Mountain area and one of few such systems in the country, will assist physicians by providing information which will help them save time in making a diagnosis. Two of the Sheridan



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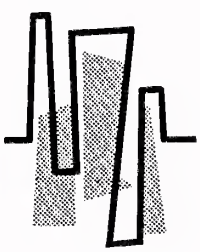

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hospital's physicians, Dr. Seymour Thickman and Dr. Herrick Aldrich who have received specialized training in cardiology and have been interpreting ECG's at the hospital, will coordinate the CEIS operation in the hospital and will confirm each computer diagnosis.

The doctors will have an added benefit of immediate consultation with heart specialists in Denver if they want an additional opinion, since the computer findings also are available in the CEIS center. Such consultation availability will be especially valuable to other doctors in Sheridan if Drs. Aldrich and Thickman are unavailable in an emergency situation.

Presently using the CEIS computer system are St. Luke's, Saint Joseph, and Presbyterian Hospitals in Denver as well as community hospitals in Alamosa, Brighton, and Vail, Colorado; Buffalo, Wyoming; Grant and Imperial, Nebraska; and a consortium of hospitals in the Great Bend, Kansas area.

CALL FOR PAPERS

The University of Colorado School of Medicine announces the 11th Annual Cochems Competition, for which a prize of $2,500 will be awarded to the author of the best paper in the field of "Thrombophlebitis and Basic Vascular Problems".

The competition is open to all persons holding the doctorate degree and entries must be received in triplicate, including all charts, illustrations, and photographs, on or before November 15, 1972. For income tax reasons, eligibility is limited to those physicians who are subject to U.S. income tax regulations.

Inquiries regarding the competition and all manuscripts should be submitted to the Dean, School of Medicine, University of Colorado Medical Center, 4200 East Ninth Avenue, Denver, Colorado 80220.

Papers on any aspect of bioengineering are being solicited for the program of the Tenth Annual Rocky Mountain Bioengineering Symposium, which will be held at the University of Colorado on May 7-9, 1973. Topics for the sessions are expected to include Health Care Delivery, Instrumentation, Prostheses, Pattern Recognition, Computers and Patient Monitoring, Grounding and Patient Safety, Ecological Applications and Biomedical Systems Analysis. The deadline for receipt of abstract (200 words) is January 1, 1973, notification of acceptance February 1, and receipt of completed paper March 1. Send all abstracts to Professor Donald E. Dick, Department of Electrical Engineering, University of Colorado, Boulder, Colorado 80302.

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OBITUARIES

Utah

Ralph E. Jorgenson, MD, Provo ophthalmologist and former President of the Utah State Medical Society, died June 20, 1972. He was 64. The son of Enoch and Elvira Nelson Jorgenson, he was born February 2, 1908, in Ephraim, Utah. He married Thelma Turpin on December 23, 1930, in Atlantic City, Iowa; the marriage was later solemnized in the Salt Lake L.D.S. Temple.

Doctor Jorgenson graduated from the University of Utah, and received his medical degree in 1932 from the University of Nebraska College of Medicine. He served his internship at St. Mark's Hospital in Salt Lake City, and then returned to Ephraim, where he practiced general medicine until 1945. He then completed a three-year residency in ophthalmology at the University of Colorado, following which he moved to Provo where he established his practice.

Active in medical society affairs, Doctor Jorgenson served as both Secretary and President of the Central Utah Medical Society. President of the Utah State Medical Association during 1962, Doctor Jorgenson had also been Councilor from the Utah County Medical Society and Alternate Delegate and Delegate to the American Medical Association. A member of the Board of Trustees of the Utah Medical Foundation since its inception in 1963, Doctor Jorgenson was serving as Foundation President at the time of his death. He was also a member of the Governor's Advisory Council for Comprehensive Health Planning and a member of its Standing Review Committee.

A Fellow of both the American Academy of Ophthalmology and Otolaryngology and the Pacific Coast Oto-Ophthalmological Society, Doctor Jorgenson had been both Vice President and President of the Utah Oto-Ophthalmological Society. A High Priest in the L.D.S. Church, he was also a member of the Provo Rotary Club and BPOE No. 849.

Surviving the doctor are his widow; a son and a daughter, and five grandchildren.

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Executive Director: Mr. Donald G. Derry, 1809 E. 18th Ave., Denver. Telephone (303) 399-1222.

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Executive Director: Mr. Nelson B. Neff, 3660 Baker Lane, Reno 89502. Telephone (702) 323-6788.

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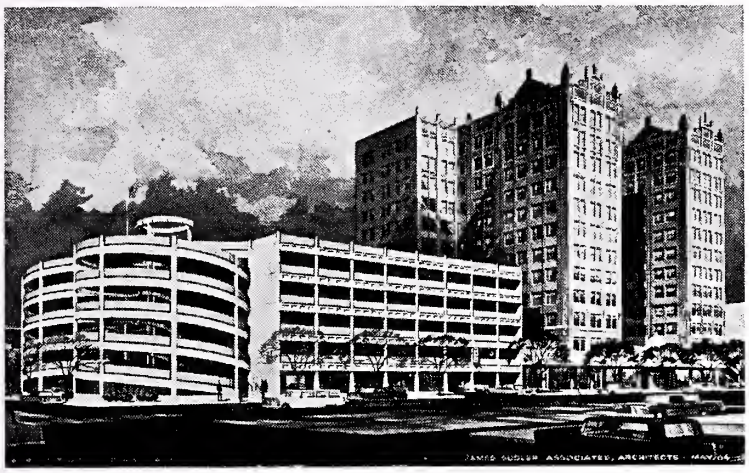

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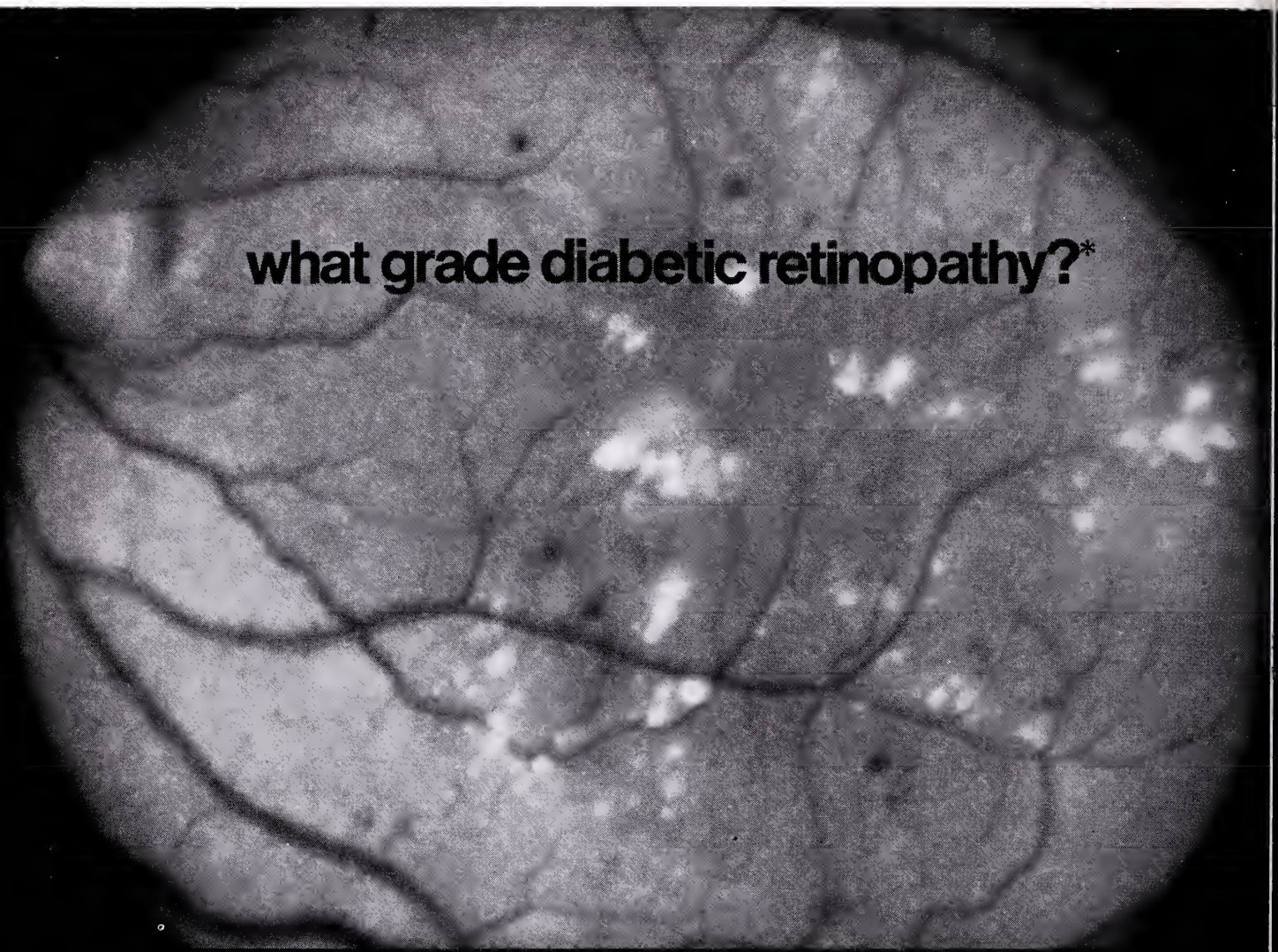

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To the Editor:

As a Board-Certified adult and child psychiatrist with broad experience, I am compelled to write in comment upon Dr. Bernice B. Elkin's paper, "Depression: Symptom or Syndrome", which appeared in the July 1972 issue (Vol. 69, No. 7) of the *Rocky Mountain Medical Journal.* Her paper, although well-intentioned and a worthy effort, contains certain inaccuracies which could be misleading.

In discussing enuresis in childhood, Dr. Elkin gives the impression that enuresis is always a symptom of depression in childhood. This is not necessarily the fact and really enuresis is not a *disease* but simply a *symptom* which can have many causes and meanings, depression being just one.

Dr. Elkin states that "severe depression in adolescents takes two main forms, 'acting out' and schizophrenia". This is a gross oversimplification Logically, it is a severe over-reduction of complicated concepts into a far too categorical and monocarpellary notion.

Despite the fact that Dr. Elkin disavows claiming that "all delinquency is due only to depression", unfortunately her wording could give the reader the idea that delinquency constitutes nothing more than a depressive equivalent. In fact, the concept of delinquency is far more complex. Dr. Elkin ignores, for example, organic delinquency, neurotic delinquency, chronic agressive delinquency, and group delinquency. Readers who are interested in pursuing this subject might find the writings of such persons as Adolph Aichorn, Melitta Schmideberg, Stanislaus Szurek, Adelaide Johnson, Kate Friedlander, K. R. Eissler, and Fritz Redl illuminating. I wish that we could simplify matters to make our jobs easier, but, unfortunately, phenomena in nature do not lend themselves to simplistic explanations and solutions.

Similarly, Dr. Elkin notes that "symptoms of depression, headaches, sleeplessness, and inability to concentrate are serious signs in an adolescent and a diagnosis of schizophrenia must be considered when a youngster mentions these symptoms". Again, there are other entities to consider first in diagnosing patients of this age group before one leaps to the idea that the patient is

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possibly or probably schizophrenic. As a matter of fact, most experienced child psychiatrists are extremely loath to place this diagnosis on a person so young since *normal adolescent phenomenology and behavior itself,* mentioning just one of the other possibilities, so closely mimics that of schizophrenia. The diagnosis of schizophrenia is best reserved for cases manifesting the classical "disorder of thought" which has been described as existing in the condition.

Dr. Elkin states that the diagnosis of schizophrenia must be considered "when young adults become depressed without any precipitating cause". I am not able to concur. I wonder why it is that Dr. Elkin keeps on mentioning schizophrenia at every point that she can throughout her paper, as if there were no other mental disorder besides it. Schizophrenia is a term for the description of a discrete clinical entity and not a word to be used to label anyone who behaves in ways that we don't like.

Dr. Elkin also states that in cases of involutional melancholia "typically there is no previous history of serious psychiatric disorder". Again, I am not able to concur. These individuals do not suddenly fall ill as if struck with a bolt from the clear blue sky. On the contrary, they are persons who have made a morbid and precarious accommodation to life and have been marginally adapted for years before the appearance of symptoms. Even before they come to the point of developing the frank melancholic condition, their personality structures are characterized by over-constriction of interests, rigidity, excessive moralism, abstemiousness, ambivalence in relationships with others, punctiliousness, parsimoniousness, and the use of reaction formation as a major defense mechanism. The pre-morbid adaptation to life, thus, has been poor for years. We do not say that a patient who manifests signs of tertiary syphilis was free of illness until his symptoms of CNS disorder or cardiovascular problems have appeared. The same is true of cases of involutional melancholia.

Psychiatry is a specialty which deals with very sophisticated and complex concepts. To attempt to over-simplify them does them violence.

Irwin Lyons, MD

Albuquerque, New Mexico

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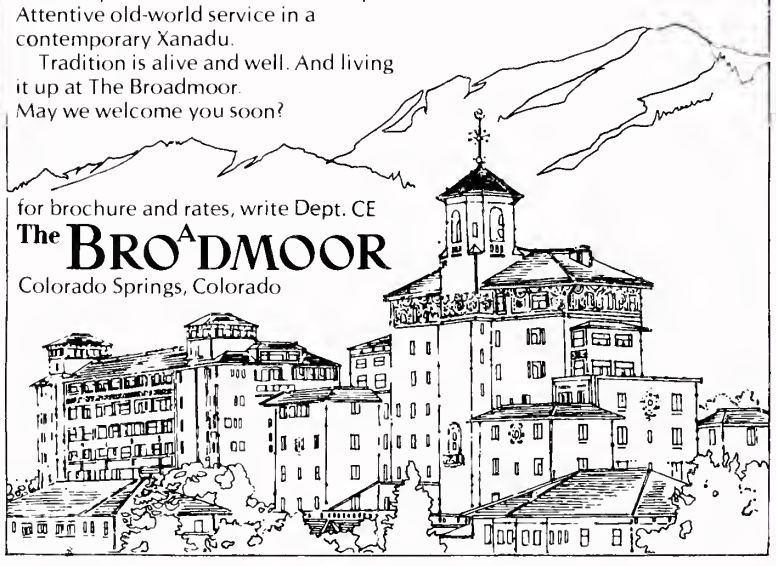

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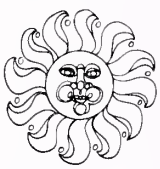

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To the Editor:

In response to Dr. Lyons' letter, I had thought it would be apparent by the length of my article, "Depression: Symptom or Syndrome", that it was not meant to be a comprehensive treatise on depression directed towards psychiatrists. My purpose was to provide a conceptual framework for non-psychiatric physicians in the Rocky Mountain area who must so frequently deal with seriously disturbed patients. Probably my definition of seriously disturbed patients differs considerably from Dr. Lyons, since I regard such terms as "rigidity, excessive moralism, abstemiousness, ambivalence in relationships with others, punctiliousness, parsimoniousness, etc.", as value judgments rather than sophisticated and complex concepts. To simplify the article even further, I was trying to make the point that schizophrenia and its maladaptive symptoms typically make their first appearance in youth and young adulthood and involutional depressive reactions typically make their first appearance in middle age. I have seen too many adolescents precipitated into psychotic decompensation by the misuse of tricyclic antidepressant medication, and too many adults denied this medication because they have been misdiagnosed as "schizophrenics".

Unfortunately, many of the residents of New Mexico and Wyoming, the two states in which I have practiced psychiatry (in contrast to New York City, where I completed three years of psychiatric residency), do not have ready access to any kind of psychiatrist. In New Mexico, outside of the 120 mile area between Albuquerque and Las Vegas, there were only three psychiatrists in the whole state as of last year. In Wyoming, there are only six psychiatrists outside of the state hospital area. Consequently, most people with psychiatric problems are treated by non-psychiatrists, to whom my article was directed. In my opinion, simplification of our usual psychiatric verbosity might be welcome to them.

I do not feel that there has been any misstatement in my article. In rereading it, the only omission that I regret is not mentioning manic-depressive psychosis for which lithium carbonate is so effective.

I would be most interested in the comments of my psychiatric and non-psychiatric colleagues in this matter.

Bernice B. Elkin, MD

Casper, Wyoming

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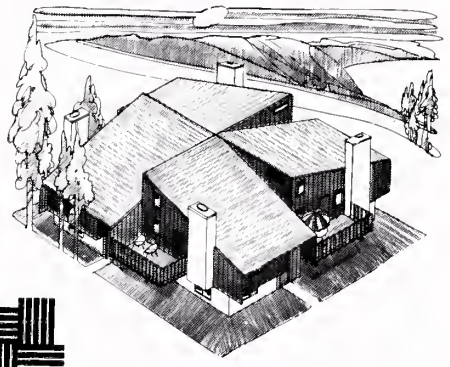

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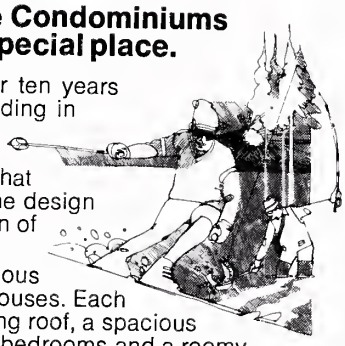

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for today's pain...

memory of yesterday's pain...

apprehension over tomorrow's pain–

the analgesic formula that calms instead of caffeinates

Phenaphen® with

For the patient with a terminal illness, PAIN past, present, and future can dominate his thoughts until it becomes almost an obsession. The more he is aware of the pain he is now experiencing, the more difficult it is to erase his memory of yesterday's pain, and to allay his fearful anticipation of tomorrow's pain.

Surely the last thing this patient needs is an analgesic containing caffeine to stimulate the senses and heighten pain awareness. A far more logical choice is Phenaphen with Codeine. The sensible formula provides ¼ grain of phenobarbital to take the nervous "edge" off, so the rest of the formula can help control the pain more effectively. Don't you agree, Doctor, that psychic distress is an important factor in most of your terminal and long-term convalescent patients?

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Phenaphen with Codeine No. 2, 3, or 4 contains: Phenobarbital (¼ gr.), 16.2 mg. (warning: may be habit forming); Aspirin (2½ gr.), 162.0 mg.; Phenacetin (3 gr.), 194.0 mg.; Hyoscyamine sulfate, 0.031 mg.; Codeine phosphate, ¼ gr. (No. 2), ½ gr. (No. 3) or 1 gr. (No. 4) (warning: may be habit forming).

Indications: Provides relief in severe grades of pain, on low codeine dosage, with minimal possibility of side effects. Its use frequently makes unnecessary the use of addicting narcotics. **Contraindications:** Hypersensitivity to any of the components. **Precautions:** As with all phenacetin-containing products, excessive or prolonged use should be avoided. **Side effects:** Side effects are uncommon, although nausea, constipation and drowsiness may occur. **Dosage:** Phenaphen No. 2 and No. 3—1 or 2 capsules every 3 to 4 hours as needed; Phenaphen No. 4—1 capsule every 3 to 4 hours as needed. For further details see product literature.

(III) Phenaphen with Codeine is now classified in Schedule III, Controlled Substances Act of 1970. Available on written or oral prescription and may be refilled 5 times within 6 months, unless restricted by state law.

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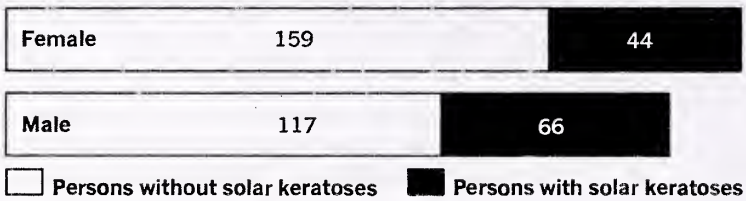
What it means to live and work in Tipton County, Tennessee

Persons who are white and over 40 have one chance in four of having solar keratoses... which may be premalignant

An epidemiologic study* conducted in Tipton County, Tennessee, revealed that 28.5% of white persons over 40 had solar keratoses; most had multiple lesions. Cluster sampling projected an estimated prevalence of 32.5% for white males and 19.5% for white females.

Though this is an unusually high percentage of affected persons, these lesions can occur in any white population, wherever people work or play out of doors.

Prevalence of solar keratoses in white persons over 40 in Tipton County, Tennessee



*Data on file, Hoffmann-La Roche Inc., Nutley, New Jersey.

Solar, actinic, senile keratoses

Called by many names, the typical lesion is flat or slightly elevated, brownish or reddish in color, papular, dry, adherent, rough, sharply defined; usually multiple lesions, chiefly on exposed portions of the skin.

Sequence/selectivity of response

Erythema in areas of lesions may begin after several days of therapy; height of reaction (only in affected areas)* usually occurs within two weeks, declining after discontinuation of therapy. Since this response is so predictable, lesions that do not respond should be biopsied to rule out the presence of a frank neoplasm.

Cosmetic results

Cosmetic results are highly favorable. Incidence of scarring is low—important with multiple facial lesions. Efudex should be applied with care near the eyes, nose and mouth.

5% cream–a Roche exclusive

Only Roche formulates the 5% cream... high in patient acceptability... high in clinical efficacy, especially for lesions of hands and forearms... economical.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Multiple actinic or solar keratoses.

Contraindications: Patients with known hypersensitivity to any of its components.

Warnings: If occlusive dressing used, may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.

Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.

Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with nonmetal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.

How Supplied: Solution, 10-ml drop dispensers—containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)aminomethane, hydroxypropyl cellulose, parabens (methyl and propyl) and disodium edetate.

Cream, 25-Gm tubes—containing 5% fluorouracil in a vanishing cream base consisting of white petrolatum, stearyl alcohol, propylene glycol, polysorbate 60 and parabens (methyl and propyl).

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- ☐ **simethicone—for accompanying distention and pain due to gas**
- ☐ **phenobarbital—for associated anxiety and tension**

Contraindications: Hypersensitivity to barbiturates or belladonna alkaloids, glaucoma, advanced renal or hepatic disease.

Precautions: Administer with caution to patients with incipient glaucoma, bladder neck obstruction or urinary bladder atony. Prolonged use of barbiturates may be habit-forming.

Side effects: Blurred vision, dry mouth, dysuria, and other atropine-like side effects may occur at high doses, but are only rarely noted at recommended dosages.

Dosage: *Adults:* One or two tablets three or four times daily. Dosage can be adjusted depending on diagnosis and severity of symptoms.

Children 2 to 12 years: One-half or one tablet three or four times daily. Tablets may be chewed or swallowed with liquids.

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(from the Greek **kinetikos**,
to move,
and the Latin **sedatus**,
to calm)

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Chuckwalla (*Sauromalus obesus*):
This southwestern desert lizard seeks
shelter in crevices of rocks.
When attempts are made to probe him
from his niche, he gulps air
until his torso is distended up to
sixty per cent over its normal size...
thus wedging himself tightly
in place and preventing capture.

NATIONAL AFFAIRS

Summary of the Actions of
The House of Delegates
American Medical Association
121st Annual Convention
San Francisco, California
June 18-22, 1972

An eloquent plea by new President Carl A. Hoffman that unionization of medicine be rejected, historic action in regard to graduate medical education, and approval of representation for medical students in the House of Delegates highlighted the annual meeting. In addition, results of the first AMA membership poll were presented to delegates, showing an overwhelming number of physicians endorsing AMA efforts to retain the basic principles of private practice in any government health program that might be enacted.

Meeting for a total of 17 hours and 20 minutes, the House acted on 59 reports and 130 resolutions. Delegates named Russell B. Roth of Erie, Pennsylvania, president-elect.

Inaugural Address: Carl A. Hoffman, President of the AMA

Shall the House of Medicine be a House united —or a House divided?

"That, in my judgment, is the central question before us at this moment in our history," the AMA's 127th president said. He noted that factionalism in the profession assumes a number of forms but "one form requires special comment".

"The cry for unionism is being raised in our profession as never before. There is no doubt that trade unionism has been an effective and valuable social instrument in our nation. But is it a proper activity for physicians to engage in?"

It is not, Dr. Hoffman said, because "unionism seeks its objectives through group power—and it achieves its power by carefully controlled conformity".

"This is the very objection we as a profession have raised against government-controlled medicine. The source of power of unionism lies in its ultimate weapon—the strike. A strike, even the threat of a strike, is a threat to withhold services. It is, therefore, *a violation of medical ethics.*

"Cynics may scoff, but millions of Americans still do enjoy a close personal relationship with their physicians. Polls prove conclusively that, despite all the negative comments, Americans by and large still believe in *their* doctors, in our commitment to our profession and to our patients."

Dr. Hoffman cautioned physicians to "consider well and carefully" before choosing unionism. As an alternative, he called for unity in the profession through a representative consensus, as found in the AMA.

"We as a profession must have impact on all the matters that concern us—on medical education, on peer review, on quality of care, on government programs," he said. "We can have that impact only if we are able to exert the power that derives from unity . . . Not controlled conformity . . . Unity—acceptance of a representative consensus."

On other matters, Dr. Hoffman said, "Peer review is an idea whose time has come. With the acceptance of the third party payor system, we accepted the ultimate necessity for certain controls by those who pay the bills. It is in the public interest—and in our own interest—to develop a flexible mechanism that is credible to the public, and does not lower the dignity of the profession. . . . Peer review was initiated by the profession itself. It would be tragic and a dereliction of duty if we were to surrender that initiative to others. It is not only the better part of valor, but the best part of realism, not to let that happen."

Dr. Hoffman, expressing concern over a "health systems comparisons game" involving the U.S. and other nations, announced he would visit England, Sweden, Russia, and perhaps China to study their health care systems. "I want to see what they are doing that might be of advantage to our system and perhaps offer some of our knowledge to them," he said of the trip, set for the first few weeks in July. He also said he would study health care problems at home, including those of Indians on reservations and the rural poor. "My findings will be (promptly) reported to you and the American public."

Concluding, Dr. Hoffman addressed himself to younger members of the House and to new physicians in general. He said he believed in years to come they would find that "this association alone represents American medicine". And as our society becomes more complex and the government larger, "there is an even greater need for institutionalized power outside of government," he said.

"In a few years this House of Medicine will be yours. Alter this House as you will . . . strengthen it if you can . . . but above all, preserve it."

Final Report to the House: Wesley W. Hall, President of the AMA

Dr. Hall also called for unity in the medical profession.

"Ask not what your profession can do for you, but ask yourselves what you have done, what you can do, what you are doing, and are willing to do for your profession, today, tomorrow and all the tomorrows to follow," he urged.

During his term, Dr. Hall said, "I have attempted to visit with every doctor possible at every medical meeting I have attended." Because "you gave me a job to do—to help represent the medical profession to emphasize across the width

and breadth of this land that our profession is one of *service* to our patients and the American public —a magnificent profession."

Of his remarks at the last annual and clinical sessions, Dr. Hall said: "It is quite obvious (they) were not received by all with overwhelming enthusiasm and accord. I was trying to convey to you the message: Not 'tell-it-as-you-want-to-hear-it' but 'tell-it-as-it-is'."

He told of seeing, as a young boy, how a train could not move on icy tracks until sand was placed on the tracks. "You see," he quoted the station master as saying, "without friction there can be no forward progress."

Dr. Hall concluded with a number of recommendations for consideration by the House, including:

1. Study of physician manpower supply and medical schools to determine precisely how many doctors the country needs, and how they should be distributed. He noted that lack of careful planning resulted in an oversupply of teachers and engineers, with resulting unemployment of those professionals.
2. Better liaison with medical schools.
3. A National Speakers' Bureau of the AMA.
4. Improvement of liaison with constituent and component societies.
5. A management survey of AMA.
6. A three-times yearly report from AMA to delegates and state society officials showing current AMA membership, state by state. "This would offer a challenge and stimulus to work even harder in bringing all eligible members into the AMA family," Dr. Hall said.

Opinion Poll

The House received, and adopted, results of the first membership opinion poll on critical issues affecting the practice of medicine. The overwhelming majority of 94,000 respondents (73.1 per cent) recommended that AMA continue to seek to retain the basic principles of private practice in any government enacted health program. And more than half (55.7 per cent) preferred the AMA plan of national health insurance over all others. The AMA plan was four times as acceptable as the next most preferable option, which was catastrophic coverage only (14.1 per cent). If compulsory health insurance were adopted, 28.1 per cent of respondents said they would continue private practice "with those patients who would pay my private fees" and 24.6 per cent said they would "join the federal program and continue to practice under it". Many (21.6 per cent) were undecided as to what they would do.

On the work of the Association, programs which received the greatest percentage of responses indicating "not enough" emphasis were: communications to the public (62.5 per cent); practice management problems (39.8 per cent); and socioeconomic issues (35.1 per cent). A majority of members indicated AMA was placing "proper" emphasis on: scientific activities (66.3 per cent); medical education (67.9 per cent); continuing education (63.3 per cent); membership benefits (51.8 per cent); and communication to the medical profession (55.2 per cent).

The questionnaire went to 177,882 non-federally employed members and 94,035, or 52.9 per cent, questionnaires were returned. The questionnaire also was sent to a random sample of 4,500 members, including federal physicians, and a random sample of 3,000 non-members of the AMA to test sampling techniques as a possible tool for use in future surveys.

Physicians' Assistants

Reflecting concern for "potential problems which could arise", the House approved a policy opposing employment of physicians' assistants in hospitals. The move was recommended by the Council on Health Manpower and the Board of Trustees, through Board Report B. "The Council believes that direct responsibility to and supervision by a physician is a critical element in the safe and effective performance of a physician's assistant," the report said. To the report's recommendation that an assistant "not function in that capacity when an employee of and paid by a hospital," the House added, "or (employed) by a fulltime, salaried, hospital-based physician."

Also adopted was Board Report Z, proposing guidelines for compensating physicians for services of physicians' assistants. It urged legislation to empower state boards of medical examiners to approve a physician's employment of an assistant and to approve proposed functions of the assistant, as described by his employer. Reimbursement for assistant's services should be made directly to the employing physician, the report said.

Report Z was amended by adding (at the end of line 21, page 2): "The term 'physician's assistant' as used refers solely to new occupations being developed to assist the physician in delivery of personal care services, and not to such existing or established occupations as the medical office assistant."

Allied Personnel

Also adopted was Board Report F, dealing with education and utilization of allied health manpower. Some of its recommendations urged AMA to:

1. Continue to support efforts to increase the number and improve the utilization of medical, nursing, and allied personnel until 1975, with re-evaluation then on the need for further efforts.
2. Continue to support improvement of the professional and financial potential of allied health careers.
3. Continue efforts to expand allied health career opportunities for minority and disadvantaged groups.
4. Strongly reaffirm support of an expanded role for the nurse in providing patient care and

study the nurse's role in relation to the physician assistant, so the two professions can complement rather than duplicate one another.

Graduate Medical Education

In a major step, the House approved Report H of the Board, which establishes a Liaison Committee on Graduate Medical Education and a Coordinating Council on Medical Education.

The panels will include representatives of the AMA, Association of American Medical Colleges, Council of Medical Specialty Societies, American Hospital Association, the public, and the federal government. The House decreed, in an amendment, that AMA's four representatives to the Committee will be appointed by and from the Council on Medical Education, and the three Council representatives elected by the House, with the first election at the 1972 Clinical Convention. Continuing a spirit of recognition for young physicians and medical students, the House also added this amendment (line 38, Reference Committee C report):

As soon as feasible after formation of the Committee and Council, AMA representatives (will) institute negotiations to provide representation from interns and residents on the Committee, and from interns, residents, and medical students on the Council.

Marihuana

The House refused to accept the statement in Board Report J which said, "Possession of marihuana for personal use and transfer (not sale) of insignificant amounts should not be criminal acts." After extensive debate, this substitute recommendation was adopted:

This AMA House of Delegates does not condone the production, sale or use of marihuana. It does, however, recommend that the personal possession of insignificant amounts be considered at most a misdemeanor with commensurate penalties applied.

The substitute recommendation continued (in agreement with the original):

(The House) also recommends its prohibition for public use; and that a plea of marihuana intoxication should not be a defense in any criminal proceeding.

Fee Determinations

Delegates approved a strong resolution aimed at any independent determination of customary physicians' fees:

RESOLVED, that where benefits include physicians' fees, management, labor and third party carriers shall consult with duly constituted representatives of organized medicine before determining "usual, customary and reasonable fees".

The resolution was adopted in lieu of several others, all protesting actions of Aetna Life and Casualty Insurance Company. It added: "The medical profession will not condone or tolerate action on the part of any third party that would encourage or promulgate litigation in the settlement of any such dispute." This referred to a practice of telling policy holders that—except where there was prior agreement between patient and physician as to the fee—the insurance company would pay the patient's legal costs if the physician sued to collect his full fee.

The resolution also reminds physicians "that they have the right to enter into prior agreement with patients regarding the fee for services to be rendered."

Executive Vice President's Report

The House commended Dr. Ernest B. Howard, AMA executive vice president, and AMA employees "for a job well done", in adopting Dr. Howard's report. The report outlines the extensive activities of the Association, ranging from answering 50,000 requests for help and information from the public each year, to sponsoring 1,100 scientific lectures and exhibits.

Medical Students

Bylaws changes which give medical students membership in the AMA and representation in the House of Delegates were approved by the House. A new class of direct membership for students was created, as was done previously for interns and residents. Such membership is available to members in good standing of the student American Medical Association, or upon application with endorsement of two regular members of the AMA on the faculty of the student's school, provided there is no disapproval of membership by the Judicial Council. Students will elect their delegate and alternate delegate at a business meeting the day before each annual convention opens, with delegates to serve until the next annual session. Student dues are to be decided later by the House.

Conventions

Although delegates were prepared for lively and extensive debate on Board Report L, dealing with conventions, it failed to develop. The report, among other things, would have switched the 1975 annual meeting from Atlantic City to Dallas.

But the House reaffirmed Atlantic City for 1975, and Dallas for the 1976 annual. The House referred to the Council on Long Range Planning and Development a recommendation that House meetings and scientific assemblies be held at different times and places.

Smoking

To the accompaniment of several hacking coughs, delegates voted to "discourage smoking during sessions of the House". One delegate unsuccessfully invited others to "butt out" of smokers' business. On the vote, however, Vice Speaker Walker announced that, "Speaker Roth and I, both being smokers, reluctantly agree that the ayes have it."

Group Disability

The House approved acceptance of a new contract with the Fireman's Fund Insurance Company to continue the AMA Group Disability Insurance Program (Board Report M). The contract is to run five years, ending September 1, 1977, although the program is not guaranteed beyond September 1, 1974. There will be no increase in premium, but benefits will be reduced by 50 per cent from age 65 through 69, and an additional 50 per cent at age 70, remaining at that level for life. The amount of benefits payable for accidents will be reduced the same as sickness benefits. The Board said Fireman's Fund insisted on the change and that no alternate carrier could be found.

Association and House Matters

Several proposals dealing with AMA structure and delegate representation and terms of office were considered. The House adopted a resolution endorsing preservation of the AMA as a federation of constituent and state medical associations, with proportionate representation as at present. It also directed the Council on Long Range Planning and Development "to consider and explore any and all methods whereby medical specialty societies and other medical organizations may have more input into the AMA . . ." The question of geographic representation on the Board of Trustees also was referred to the Council, with instructions to report back no later than the next annual meeting. On a proposal that trustees be limited to one six-year term, the House voted to ballot on the matter at the 1972 Clinical Meeting. The ballot will contain four choices for trustee terms: three-year term, maximum three terms, as at present; three-year term, maximum two terms; four-year term, maximum two terms; and six-year term, maximum one term.

Resolutions must be submitted to Headquarters no later than 30 days prior to opening of the session at which it is to be considered, the House decreed. However, a constituent society whose House adjourns during, or one week before, the 30-day period is allowed seven days after its meeting ends to submit resolutions.

Miscellaneous

The House adopted Board Report E, which says, "Insurance carriers should be urged to provide nondiscriminatory coverage for alcoholism and drug dependence."

The Interspecialty Committee was elevated to the status of Interspecialty Council. Since the Committee's establishment in 1966, Board Report O said it has enabled representatives of specialty groups "to confer and exchange ideas on major issues confronting medicine, and has enabled the specialty societies to participate in the formulation of AMA policy decisions".

Essentials of approved educational programs for urologic physicians' assistants, respiratory therapy technician and respiratory therapist, and for medical assistants in pediatrics were adopted.

Paul Dudley White of Boston, internationally famed heart specialist, received the fifth annual Sheen Award (including a check for $10,000) for outstanding contributions to medicine.

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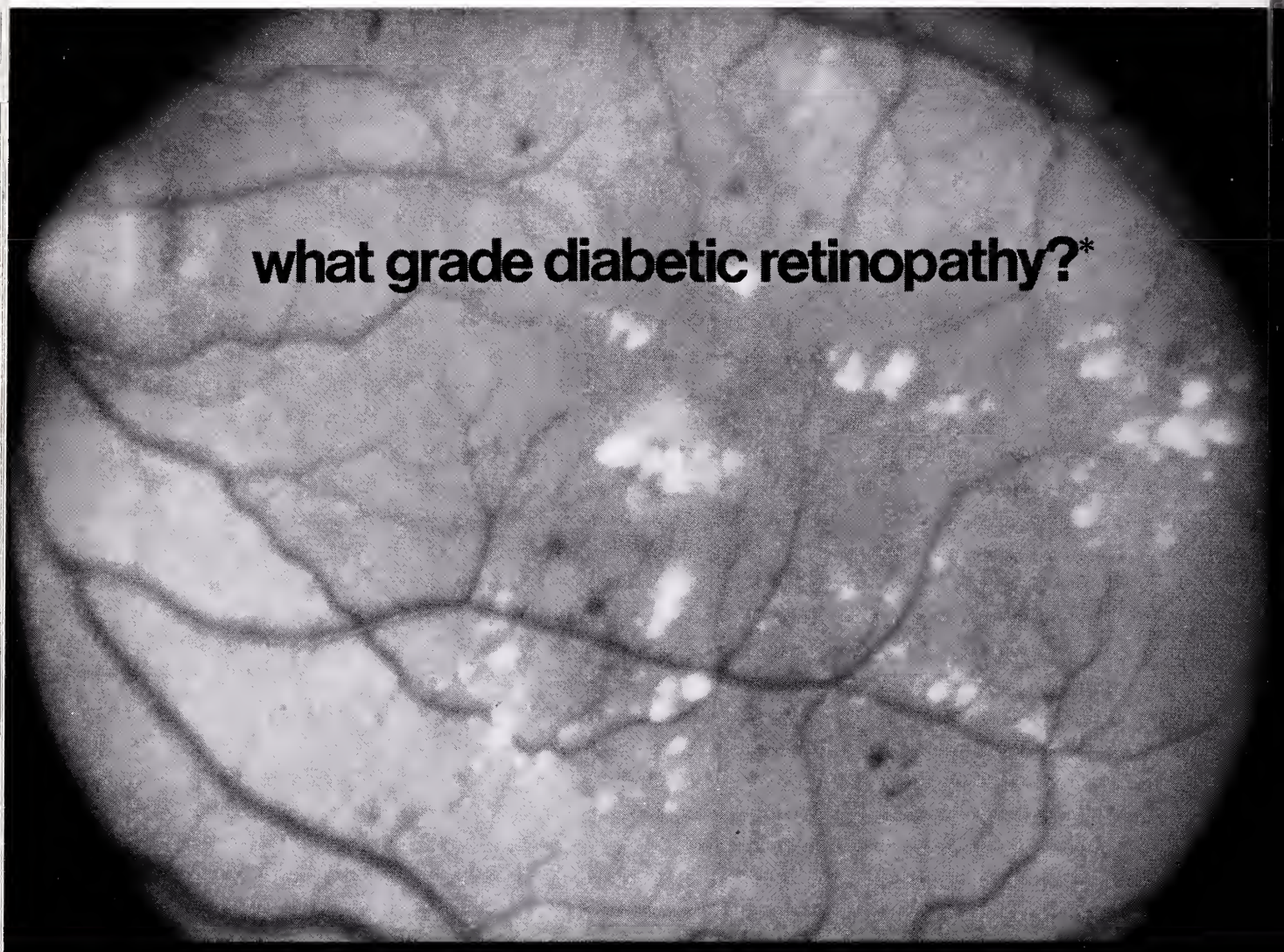

In diabetes when nutritional supplementation is indicated

Berocca® tablets is therapy

With balanced, high potency B-complex and C vitamins.
No odor.
Virtually no aftertaste.
Lowest priced Rx formula.

Please see Complete Prescribing Information, a summary of which follows:

Indications: Nutritional supplementation in conditions in which water-soluble vitamins are required prophylactically or therapeutically.

Warning: Not intended for treatment of pernicious anemia or other primary or secondary anemias. Neurologic involvement may develop or progress, despite temporary remission of anemia, in patients with pernicious anemia who receive more than 0.1 mg of folic acid per day and who are inadequately treated with vitamin B_{12}.

Dosage: 1 or 2 tablets daily, as indicated by clinical need.

Available: In bottles of 100.

Each Berocca Tablet contains:

Thiamine mononitrate	15 mg
Riboflavin	15 mg
Pyridoxine HCl	5 mg
Niacinamide	100 mg
Calcium pantothenate	20 mg
Cyanocobalamin	5 mcg
Folic acid	0.5 mg
Ascorbic acid	500 mg

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* **Grade II diabetic retinopathy is revealed by the small hemorrhages and exudates in this photograph of the fundus.**

Iron therapy for anemia is almost as old as history itself

Celsus's empirical use of iron

Aulus Cornelius Celsus recommended an unusual form of iron therapy for the treatment of enlarged spleens—the oral administration of water that blacksmiths had used for dousing white-hot iron.

For more modern anemia therapy

Trinsicon

Hematinic Concentrate with Intrinsic Factor

(See reverse side for prescribing information.)

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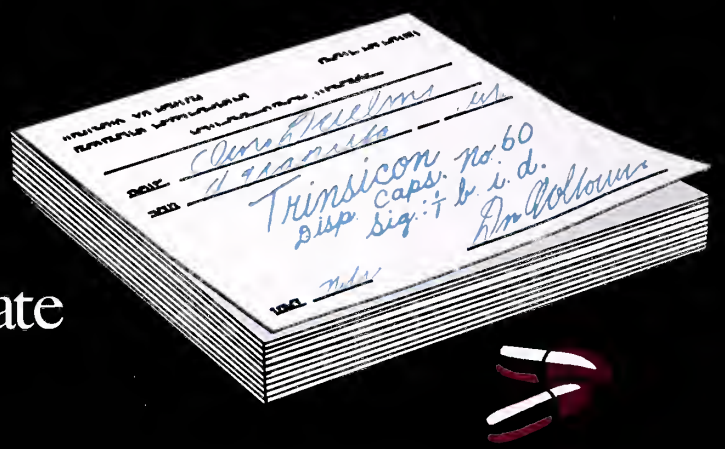
Hematinic Concentrate with Intrinsic Factor



Description: Each Pulvule® contains—

Special Liver-Stomach Concentrate, Lilly (containing Intrinsic Factor)	240 mg.
Cobalamin Concentrate, N.F., equivalent to Cobalamin	7.5 mcg.

(The total vitamin B_{12} activity in the Special Liver-Stomach Concentrate, Lilly, and the Cobalamin Concentrate, N.F., is 15 micrograms.)

Iron, Elemental (as Ferrous Fumarate)	110 mg.
Ascorbic Acid (Vitamin C)	75 mg.
Folic Acid	0.5 mg.

Indications: Trinsicon is a multifactor preparation effective in the treatment of anemias that respond to oral hematinics, including pernicious anemia and other megaloblastic anemias and also iron-deficiency anemia. Therapeutic quantities of hematopoietic factors that are known to be important are present in the recommended daily dose.

Vitamin B_{12} with Intrinsic Factor—When secretion of intrinsic factor in gastric juice is inadequate or absent (e.g., in Addisonian pernicious anemia or after gastrectomy), vitamin B_{12} in physiological doses is absorbed poorly, if at all. The resulting deficiency of vitamin B_{12} leads to the clinical manifestations of pernicious anemia. Similar megaloblastic anemias may develop in fish tapeworm (*Diphyllobothrium latum*) infection or after a surgically created small-bowel blind loop; in these situations, treatment requires freeing the host of the parasites or bacteria which appear to compete for the available vitamin B_{12}. Strict vegetarianism and malabsorption syndromes may also lead to vitamin B_{12} deficiency. In the latter case, parenteral therapy, or oral therapy with so-called massive doses of vitamin B_{12}, may be necessary for adequate treatment of the patient.

Potency of intrinsic factor concentrates is determined physiologically, i.e., by their use in patients with pernicious anemia. The liver-stomach concentrate with intrinsic factor and the vitamin B_{12} contained in two Pulvules Trinsicon provide 1½ times the minimum amount of therapeutic agent which, when given daily in an uncomplicated case of pernicious anemia, will produce a satisfactory reticulocyte response and relief of anemia and symptoms.

Concentrates of intrinsic factor derived from hog gastric, pyloric, and duodenal mucosa have been used successfully in patients who lack intrinsic factor. For example, Fouts *et al.* maintained patients with pernicious anemia in clinical remission with oral therapy (liver extracts or intrinsic factor concentrate with vitamin B_{12}) for as long as twenty-nine years.

After total gastrectomy, Ficarra found multifactor preparations taken orally to be "just as effective in maintaining blood levels as any medication that has to be administered parenterally." His study was based on twenty-four patients who had survived for five years after total gastrectomy for cancer and who had been taking two Pulvules Trinsicon daily.

Folic Acid—Folic acid deficiency is the immediate cause of most, if not all, cases of nutritional megaloblastic anemia and of the megaloblastic anemias of pregnancy and infancy; usually, it is also at least partially responsible for the megaloblastic anemias of malabsorption syndromes, e.g., tropical and nontropical sprue.

It is apparent that in vitamin B_{12} deficiency (e.g., pernicious anemia), lack of this vitamin results in impaired utilization of folic acid. There are other evidences of the close folic acid-vitamin B_{12} interrelationship: (1) B_{12} influences the storage, absorption, and utilization of folic acid, and (2), as a deficiency of B_{12} progresses, the requirement for folic acid increases. However, folic acid does not change the requirement for vitamin B_{12}.

Iron—A very common anemia is that due to iron deficiency. In most cases, the response to iron salts is prompt, safe, and predictable. Within limits, the response is quicker and more certain to large doses of iron than to small doses.

Each Pulvule Trinsicon furnishes 110 mg. of elemental iron (as ferrous fumarate) to provide a maximum response.

Ascorbic Acid—Vitamin C plays a role in anemia therapy. It augments the conversion of folic acid to its active form, folinic acid. In addition, ascorbic acid promotes the reduction of ferric iron in food to the more readily absorbed ferrous form. Severe and prolonged vitamin C deficiency is associated with an anemia which is usually hypochromic but occasionally megaloblastic in type.

Contraindications and Precautions: Anemia is a manifestation that requires appropriate investigation to determine its cause or causes.

Folic acid *alone* is unwarranted in the treatment of pure vitamin-B_{12}-deficiency states, such as pernicious anemia. Indeed, the use of folic acid in large doses in pernicious anemia without adequate vitamin B_{12} may result in hematologic remission but neurological progression.

As with all preparations containing intrinsic factor, resistance may develop in some cases of pernicious anemia to the potentiation of absorption of physiological doses of vitamin B_{12}. If resistance occurs, parenteral therapy, or oral therapy with so-called massive doses of vitamin B_{12}, may be necessary for adequate treatment of the patient. No single regimen fits all cases, and the status of the patient observed in follow-up is the final criterion for adequacy of therapy. Periodic clinical and laboratory studies are considered essential and are recommended.

In extremely rare instances, skin rash suggesting allergy has been noted following the oral administration of liver-stomach material. Allergic sensitization has been reported following both oral and parenteral administration of folic acid.

Hemochromatosis and hemosiderosis are contraindications to iron therapy.

Adverse Reactions: In rare instances, iron in therapeutic doses produces gastrointestinal reactions, such as diarrhea or constipation. Reducing the dose and administering it with meals will minimize these effects in the iron-sensitive patient.

Dosage: One Pulvule twice a day. (Two Pulvules daily produce a standard response in the average uncomplicated case of pernicious anemia.)

How Supplied: Pulvules Trinsicon® (hematinic concentrate with intrinsic factor, Lilly), in bottles of 60 and 500 and in Identi-Dose® (unit dose medication, Lilly) in boxes of 100.

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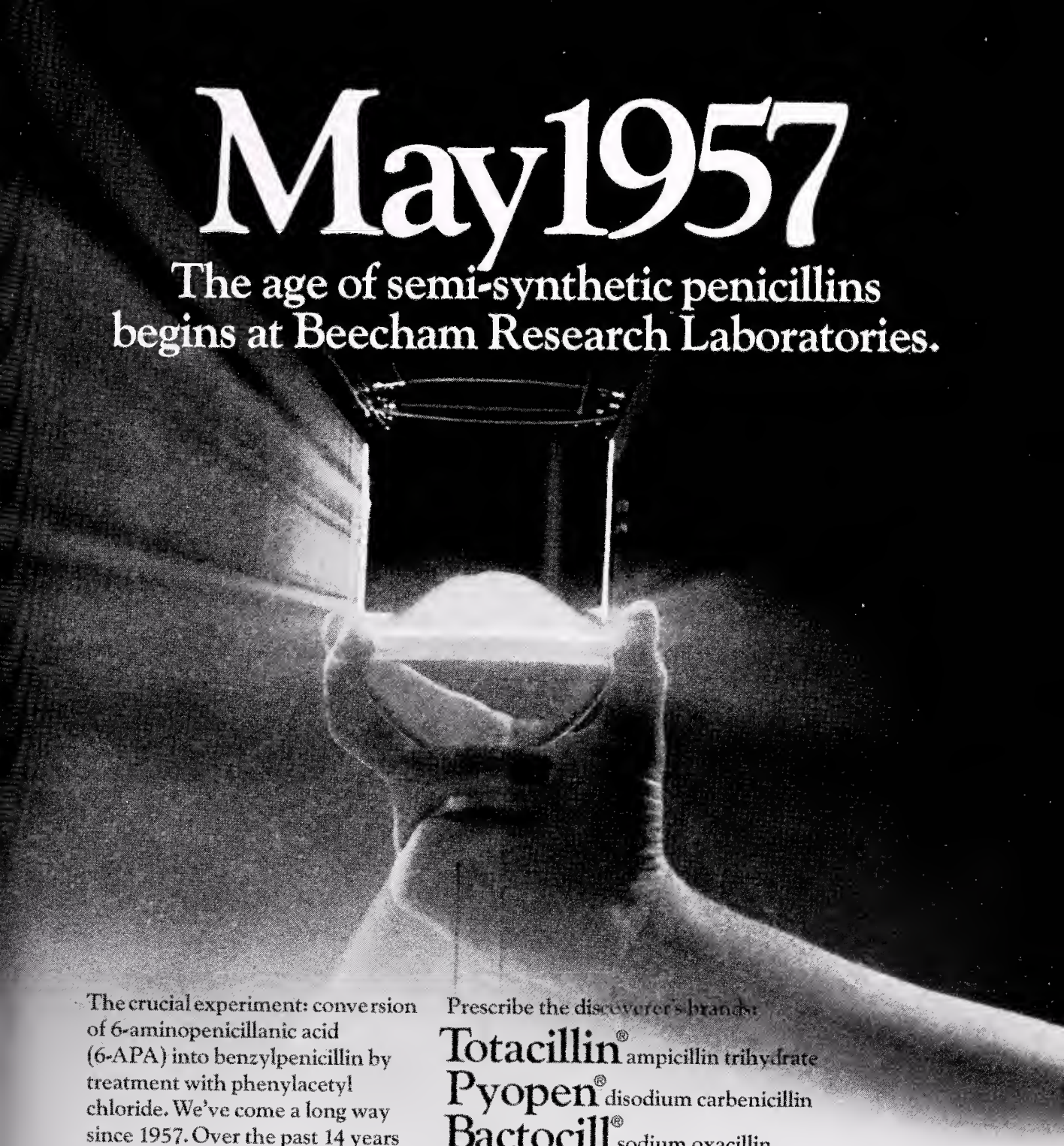

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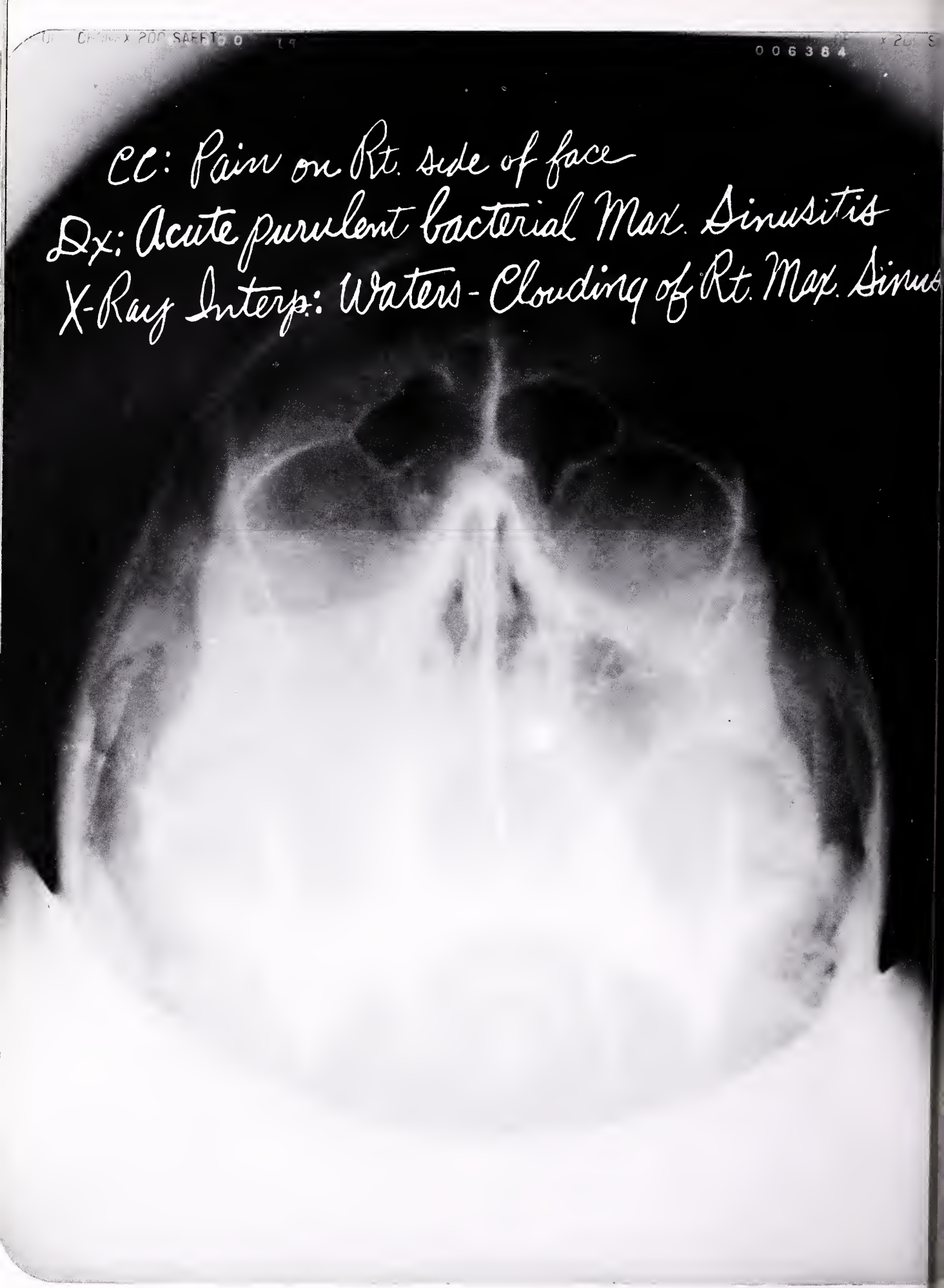

X-ray provided by Manhattan Eye, Ear and Throat Hospital

There are many frustrations in treating acute sinusitis. Cleocin manages most of the bacterial ones.

Inadequate drainage, chronic rhinitis, allergy, exposure to temperature extremes, and other factors can delay recovery from acute sinusitis.

It's helpful to have an antibiotic like Cleocin HCl (clindamycin HCl hydrate, Upjohn) that can take care of most of the gram-positive bacterial problems related to the disease.

As one study* of 52 outpatients showed, acute maxillary sinusitis was associated with staphylococci in 50% of the group, with pneumococci in 25%, and with streptococci and various other organisms (chiefly gram-negative) in the remainder. Significantly, one-half of these staphylococcal infections were resistant to both penicillin and tetracycline (all were sensitive to erythromycin and chloramphenicol). Although not a part of this study, many other clinical and bacteriologic reports[1] have shown that such gram-positive bacteria, which most often are associated with acute sinusitis, are usually susceptible to Cleocin.

Can be taken before, with, or after meals

The total absorption of Cleocin is virtually unaffected by the presence of food in the GI tract.[1] Cleocin thus can be administered as prescribed without interfering with the patient's mealtimes.

Useful in patients hypersensitive to penicillin

Cleocin's chemical structure bears no relationship to penicillin or the cephalosporins. Cleocin therefore may be especially useful in patients with acute sinusitis who report a history of hypersensitivity to these antibiotics. Although hypersensitivity reactions have been uncommon with Cleocin, it should be used cautiously in atopic individuals. Cleocin is not recommended in the lincomycin-sensitive patient.

Please see following page for further prescribing information.

Cleocin® 150 mg capsules HCl

clindamycin HCl hydrate, Upjohn

[1] Reynolds, R. C., et al.: Bull. Johns Hopkins Hosp. 114:269, 1964
*Data on file, Medical Research Department, The Upjohn Company

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Side effects: In studies of 1,416 patients involving 92 clinical investigators, side effects were reported in 8.2%.[1] Diarrhea or loose stools were noted in 3% of these cases (one patient with bloody stools). In a few instances, diarrhea lasted several days. A slightly higher incidence of diarrhea or loose stools has been reported by some investigators in subsequent studies.

Toxicity: No irreversible hematologic, renal, dermatologic, or neurologic abnormalities have been reported.[1] Transient leukopenia and eosinophilia have been observed. Elevations of alkaline phosphatase and serum transaminases were observed in a few instances. As with other antibiotics, periodic liver function tests and blood counts should be performed during prolonged therapy.

In acute sinusitis and other upper respiratory infections due to susceptible staphylococci, streptococci, and pneumococc.

Cleocin® HCl

clindamycin HCl hydrate, Upjohn

Each preparation contains:	Clindamycin HCl hydrate equivalent to clindamycin base
150 mg Capsules	150 mg
75 mg Capsules	75 mg

Cleocin (clindamycin, Upjohn) is a new semisynthetic antibiotic produced from the parent compound lincomycin and provides more *in vitro* potency, better oral absorption and fewer gastrointestinal side effects than the parent compound.

Cleocin HCl (clindamycin HCl hydrate) is indicated in infections of the upper and lower respiratory tract, skin and soft tissue, and, adjunctively, dental infections caused by gram-positive organisms which are susceptible to its action, particularly streptococci, pneumococci and staphylococci. As with all antibiotics, *in vitro* susceptibility studies should be performed.

CONTRAINDICATIONS: Patients previously found to be hypersensitive to this compound or to lincomycin.

WARNINGS: Safety for use in pregnancy not established. Not indicated in the newborn (infants below 30 days of age).

PRECAUTIONS: Prescribe with caution in atopic individuals. Perform periodic liver function tests and blood counts during prolonged therapy. The serum half-life in patients with markedly reduced renal function is approximately twice that in normal patients; hemodialysis and peritoneal dialysis do not effectively remove Cleocin from the blood. Therefore, with severe renal insufficiency, determine serum levels of clindamycin periodically and decrease the dose appropriately. Should overgrowth of nonsusceptible organisms—particularly yeasts—occur, take appropriate clinically indicated measures.

ADVERSE REACTIONS: Generally well tolerated in clinical efficacy studies. Side effects reported in 8.2% of 1,416 patients. Of the total, 6.9% reported gastrointestinal side effects and 1.3% reported other side effects. Diarrhea or loose stools were reported in 3%. *Gastrointestinal:* Symptoms included abdominal pain, nausea, vomiting and diarrhea or loose stools. In a few instances, diarrhea lasted for several days; one case of bloody stools was reported. *Hemotopoietic:* Transient neutropenia (leukopenia) and eosinophilia have been reported; relationship to therapy is unknown. No irreversible hematologic toxicity has been reported. *Skin and Mucous Membranes:* Skin rash and urticaria have been reported infrequently. *Hypersensitivity Reactions:* A few cases of hypersensitivity reaction have been reported. If hypersensitivity occurs, discontinue drug and have available the usual agents (epinephrine, corticosteroids, antihistamines) for emergency treatment. *Liver:* Although no direct relationship of Cleocin HCl (clindamycin HCl hydrate) to liver dysfunction has been noted and significance of such change is unknown, transient abnormalities in liver function tests (elevations of alkaline phosphatase and serum transaminases) have been observed in a few instances. Also, abnormal liver function test values at the beginning of therapy have returned to normal during therapy.

DOSAGE AND ADMINISTRATION: *Adults:* Mild to moderately severe infections—150 to 300 mg every 6 hours. Severe infections—300 to 450 mg every 6 hours.

Children: Mild to moderately severe infections—8 to 16 mg/kg/day (4 to 8 mg/lb/day) divided into three or four equal doses. Severe infections—16 to 20 mg/kg/day (8 to 10 mg/lb/day) divided into three or four equal doses.

Note: With β-hemolytic streptococcal infections, treatment should continue for at least 10 days to diminish the likelihood of subsequent rheumatic fever or glomerulonephritis.

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The most commonly reported side effects are drowsiness, ataxia, and fatigue. Until individual response is determined, caution patient against driving or operating dangerous machinery.

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For the tense cardiac patient who must be kept calm

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

Dosage: Individualize for maximum beneficial effect. *Adults:* Tension, anxiety and psychoneurotic states, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed; adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d.; adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. *Geriatric or debilitated patients:* 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) *Children:* 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

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Resuscitation; Impending myocardial infarction and the prevention of sudden death; Management of arrhythmias; Conduction disorders and pacing.

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Acute renal failure; Hyper- and hypokalemia; Diabetic ketoacidosis and hyperosmolar coma; Adrenal crisis.

Mechanisms of hemostasis; Management of hereditary disorders of coagulation; Disseminated intravascular coagulation; Transfusion of blood and its components.

Gram-negative sepsis; Oncologic emergencies; Cerebral death; Infections in the compromised host.

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MEETINGS

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General Rose Memorial Hospital
VASCULAR DISEASE SYMPOSIUM
(Second Bess E. Miller Lectureship)
Sheraton Motor Inn-Denver Airport,
Denver, Colorado
September 21-22, 1972

For further information, write: Ms. Suzanne Burdge, Staff/Program Co-ordinator, General Rose Memorial Hospital, 1050 Clermont Street, Denver, Colorado 80220.

American College of Physicians
BASIC MECHANISMS IN INTERNAL MEDICINE
Medical College of Virginia, Division of
Health Sciences, Richmond, Virginia
September 25-29, 1972

Pueblo County Medical Society
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Ramada Inn, Pueblo, Colorado
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American Academy of General Practice approval has been applied for. For further information, write: Frank M. Mowry, MD, Director of Medical Education, Lovelace Foundation for Medical Education and Research, 5200 Gibson Boulevard, S.E., Albuquerque, New Mexico 87108.

SYMPOSIUM ON DIABETES
Brown Palace Hotel, Denver, Colorado
November 15, 1972

For further information, write: Symposium on Diabetes, Capitol Hill Station, P.O. Box 18520, Denver, Colorado 80218.

Colorado Medical Society's
Ad hoc Committee on the Environment
PHYSICIAN'S ROLE IN PRESERVING
THE ENVIRONMENT
Mountain Haus, Vail, Colorado
November 16-17, 1972
Fee: $10

For further information, write: Charles A. Dafoe, MD, Chairman, Ad hoc Committee on the Environment, 1809 East 18th Avenue, Denver, Colorado 80218.

American College of Cardiology
A PERSPECTIVE ON NEW TECHNIQUES
IN CONGENITAL AND ACQUIRED
HEART DISEASE
Aspen, Colorado
January 14-16, 1973

For further information, write: Miss Mary Anne McInerny, Director, Department of Continuing Education Programs, American College of Cardiology, 9650 Rockville Pike, Bethesda, Maryland 20014.

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American College of Chest Physicians
38TH ANNUAL SCIENTIFIC ASSEMBLY
Denver Convention Complex, Denver, Colorado
October 23-26, 1972

For further information, write: American College of Chest Physicians, 112 East Chestnut Street, Chicago, Illinois 60611.

CURRENT CONCEPTS IN HEMOTOLOGY
University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania
October 2-4, 1972

DEVELOPMENTAL BIOLOGY AND PERINATAL MEDICINE
McGill University Faculty of Medicine, Montreal, Quebec, Canada
October 2-4, 1972

THE NON-MEDICAL USE OF DRUGS: CHALLENGE TO THE PHYSICIAN
Gateway Downtowner Hotel, Newark, New Jersey
October 2-6, 1972

For further information about these postgraduate courses, write: Edward C. Rosenow, Jr., MD, Executive Vice-President, American College of Physicians, 4200 Pine Street, Philadelphia, Pennsylvania 19104.

Southern Medical Association
66TH ANNUAL MEETING
New Orleans, Louisiana
November 13-16, 1972

PORTUGAL-MOROCCO HOLIDAY
November 16-26, 1972

For further information about the meeting and the post-convention medical trip, write: Robert F. Butts, Executive Director, Southern Medical Association, 2601 Highland Avenue, Birmingham, Alabama 35205.

American Academy of Dermatology
31ST ANNUAL MEETING
Americana Hotel, Bal Harbour, Florida
December 2-7, 1972

For further information, write: Frederick A. J. Kingery, MD, 2250 Northwest Flanders Street, Portland, Oregon 97210.

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"The history of science, and in particular the history of medicine...is... the history of man's reactions to the truth, the history of the gradual revelation of truth, the history of the gradual liberation of our minds from darkness and prejudice."

—George Sarton, from "The History of Medicine Versus the History of Art"

Would it be useful in clinical practice to have government predetermine drugs of choice?

Opinion

Results of a survey of physicians:

13.3%
Yes, it would be useful.

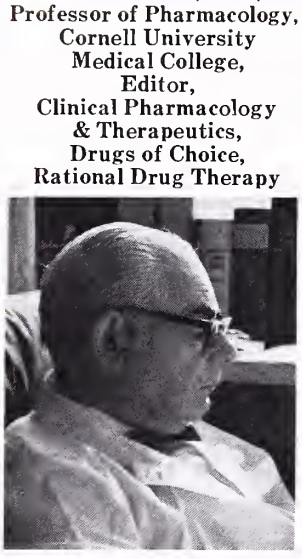
86.7%
No, it would not be useful.

Dialogue

Would it be useful in clinical practice to have government predetermine drugs of choice?

Doctor of Medicine

Walter Modell, M.D.,
Professor of Pharmacology,
Cornell University
Medical College,
Editor,
Clinical Pharmacology
& Therapeutics,
Drugs of Choice,
Rational Drug Therapy



The proposition that government should determine one or two "drugs of choice" within a given therapeutic class reflects the belief that a similarity in molecular structure insures a close similarity in pharmacologic effect. But this is by no means the rule. An obvious example would be in the field of diuretics, where a small change in chemical structure accounts for substantial differences in concomitant effects such as potassium excretion.

Any attempt to dictate the "drug of choice" would be complicated by the fact that some populations demonstrate a bimodal distribution in their reaction to drugs. If the data on drug response are mixed for the total population, one drug will appear to be as useful as the other. But if drug response is reported separately for different segments of the population, drug A will be found to be better for one group and drug B for the other.

It may, of course, be possible to determine drugs of choice in particular categories on a broad statistical basis. But there are always certain patients in whom a drug produces odd, unpredictable or idiosyncratic reactions. So, though a drug might statistically be the most useful one in a given situation, individual variations in response might make it the *incorrect* one.

The point I wish to make is that if two, three, four or more drugs in one class are of approximately equal merit, that in itself is justification for their availability. Exceptional cases do arise in which one drug would be useful to a certain segment of the population and another drug would be of no use at all. In the practice of medicine, the physician must be prepared to treat the routine as well as the unusual case.

Another objection to the determination of a drug of choice is that precise statements of *relative* efficacy are very difficult to make—much more difficult than statements of efficacy. For example, in testing drug efficacy, it is easy to determine the difference between a drug that is effective in treating a condition and one that is not at all effective. Thus, it is fairly easy to determine whether a drug is more effective than a placebo. But if you compare one drug that is effective with another drug that is also effective, and the relative differences between them are very slight, statements of relative efficacy may be very difficult to make with assurance.

I do not mean to imply that relative efficacy statements are not useful or can never be made. With some groups of drugs (e.g., analgesics), extensive study and precise methodology have yielded useful information on relative efficacy. But in most situations, such information can be acquired only through studies encompassing three to five years of use in many more patients than are used to compare drugs with a placebo for the introduction of a drug into commerce. It is really only after practitioners use a drug extensively that relative safety and efficacy in practice can really be determined.

The Bureau of Drugs has suggested the package insert as a possible mean of communicating informa on on relative efficacy of drgs to the physician. I find is objectionable, since I do not believe the physician should have to rely on is source for final scientific truth. There is also a practical objection: Since w physicians actually dispense drugs, they seldm see the package insert. In any event, I would maintain that the physician should know what drug he wants and why without depending on the governmnt or the manufacturer to tell him.

Undoubtedly, physicians are swamped by excessive numbers of drugs in some therapeutic categories. And I am well aware that many drugs within such categories could be eliminated without any loss, or perhaps even some profit, to the practice of medicine. But, in my opinion, neither the FDA nor any other single group has the expertise and the wisdom necessary to determine the one "drug of choice" in all areas of medical practice.

Maker of Medicine

nneth G. Kohlstaedt, M.D.,
Vice President,
Medical Research,
Eli Lilly and Company

In my opinion, it is not
e function of any govern-
nt or private regulatory
ency to designate a "drug
choice." This determina-
n should be made by the
ysician after he has re-
ved full information on
e properties of a drug,
d then it will be based on
s experience with this
ug and his knowledge of
e individual patient who
seeking treatment.

If an evaluation of com-
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ne and thus to the patient
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be more potent, more
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arket. Conceivably, at
is time the new drug
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choice." But as addi-
nal clinical experience is
cumulated, new evidence
ay become available.
ter, it may be apparent that the established products should not be so easily dismissed.

Variation in patient response to drugs constitutes one of the major obstacles to the determination of "drugs of choice." We are just beginning to open the door on pharmacogenetics, but it is evident that genetic differences cause wide variations in the way drugs are absorbed, metabolized, etc. This fact alone is sufficient to make unrealistic the idea that there is one drug in each class to be used for every human being.

The problem of determining relative drug efficacy is an extremely complicated one. Comparison with other drugs of the same class should not be a prerequisite for marketing a new substance. In some therapeutic areas, it may be difficult to make accurate comparisons. For example, in the treatment of infections it is not possible to conduct crossover studies. Recovery may be influenced by factors which cannot be controlled or measured, i.e., natural host resistance and virulence of infective agents. A drug's acceptability must often be judged on the basis of its own performance, and this may be limited to experience in a relatively small patient population. If the introduction of a new drug must await the adequate establishment of relative efficacy, the duration of clinical trial and extent of studies would be greatly prolonged, particularly for rare or unusual conditions. The availability of a new drug would be delayed. Many patients might suffer needlessly and lives might be lost.

Relative efficacy can best be established by experience in a general patient population through regular channels of clinical practice. The physician considers the patient as a whole, which means the patient often has multiple problems and drugs must be selected with this in mind. Hence, a "drug of choice" in an uncomplicated case may not be the best drug for a patient with associated problems. Publication of well-controlled studies in medical journals may provide comparative evidence; discussions at medical meetings, presentations at postgraduate courses, and the new audio-visual technology may bring evidence to physicians on comparative therapy. In a free medical marketplace, a drug that does not measure up will fall into disuse. For example, broad clinical experience has established vitamin B_{12} as the "drug of choice" for the treatment of primary pernicious anemia. No amount of advertising or promotional effort by the manufacturer could increase the use of liver extract for this anemia. However, a physician may wish to employ parenteral liver preparations for a special purpose.

In the field of surgery, peer review in the hospital has brought significant improvement in the use of new techniques and procedures. Something of this nature would be useful in the area of drug therapy. However, it should be developed by the medical profession itself and would necessitate, for its proper function, an improvement in the dissemination of reliable data on clinical pharmacology of drugs under consideration.

Ideally, information on the relative efficacy of drugs should be gathered and assessed by the physicians who actually administer the specific agents to a specific patient population. To do this, they will need even more information on the drugs they use – information that the pharmaceutical manufacturers must begin to provide if government regulation of *"drugs of choice"* is to be avoided.

Opinion & Dialogue

What is your opinion, doctor?
Send us your comments on the above issue.

P·M·A

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*Palmer, E. D.: *Clinical Gastroenterology*, ed. 2, New York, Hoeb Medical Division, Harper & Row, 1963, p. 206.

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ıbrax can relieve excessive nxiety, thereby helping to reduce ain and spasm

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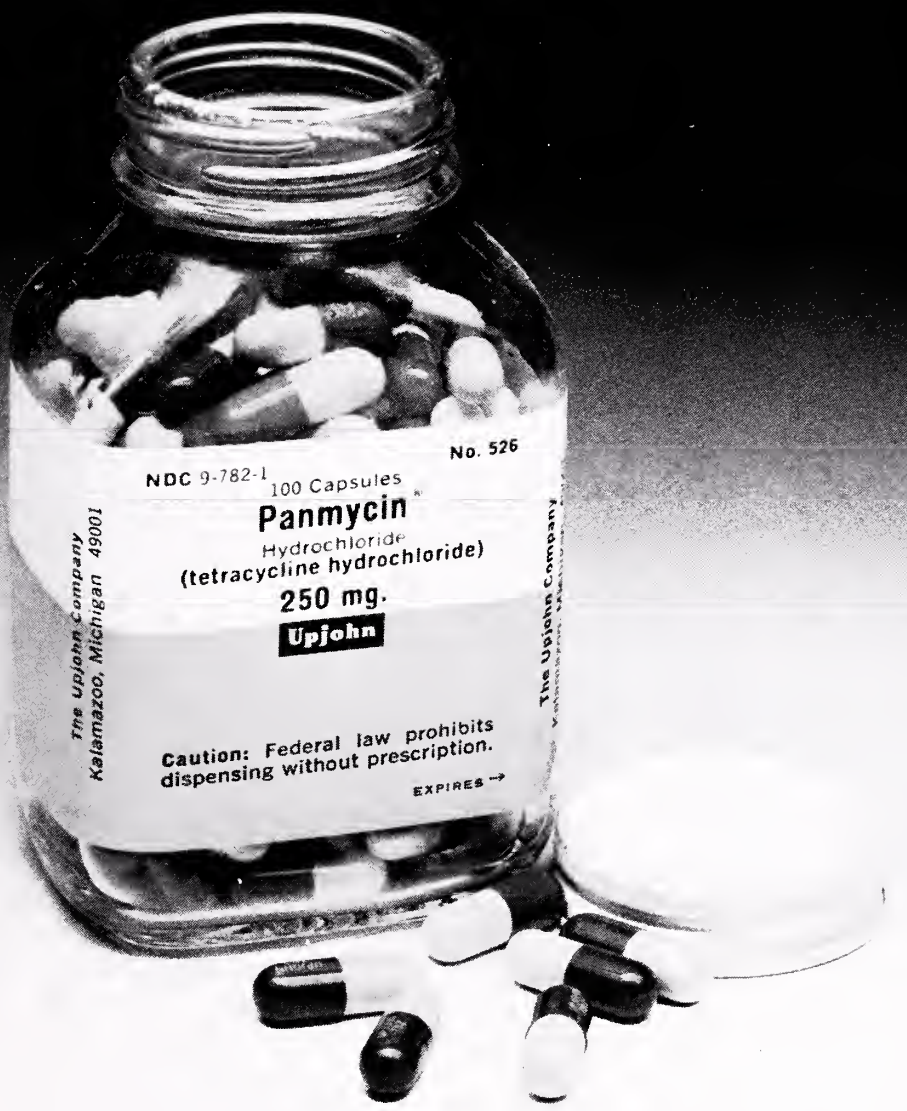

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Social Upheaval and Medical Journals

THE ACCELERATED RATE OF change in human affairs, a phenomenon of our time, has profoundly disturbed man's behavior ("future shock"). Braunwald[1] calls attention to the impact of these changes on man's life style (present tremors?). Biomedical communication has been affected — the long accepted role of the medical journal as the important means of disseminating information is being challenged by inexpensive newspaper-type publications and free magazines now capable of speeding news of medical developments to their readers within days after such information arrives at publication offices. No longer does it take months to years for important advances to be brought to the attention of physicians. No longer is such material obsolete by the time it appears in print.

The proliferation of these newspapers and periodicals testifies to their acceptance and utility. Braunwald suggests that they may become the primary means of exchanging scientific information and opinions. If so, journals would be supportive, archival in function.

Many physicians say they dump the free publications into their wastebaskets. Di Cyan thinks otherwise. In a challenging book, *Adventures in Medical Writing,* he comments that "it has become stylish to disparage certain free services—as controlled circulation journals. The snob in his fanciful dignity looks down at them but frequently reads them in privacy."[2] They fluorish because advertisers defray their expenses while conventional journals find their cost skyrocketing and their advertisers decreasing. Many have become poignant casualties of inflation, their demise contributed to by the failure of their readers to support them financially.

Shephard discusses the serious defects in the established system of medical communication that led to a three-year delay in bringing knowledge of the discovery of Prontosil and an almost two-year delay in knowledge of the discovery of thiopental sodium to the medical world.[3]

According to Shephard, medical journals are "excretory organs" which serve authors and readers passively rather than actively. If they are to survive in a society increasingly dependent on up-to-date techniques of information dissemination, they must alter their structure and format. There are several possibilities. If reinforced with tapes and visual aids, they might be conceptually similar to meetings, symposia, or congresses. They might restrict themselves to specific subjects. Or they might concentrate on abstracts. Reports of new developments could appear in a correspondence column—the original articles would be stored and circulated on request or in an abbreviated form.

In the past, haphazard communication has led to a fragmentation of knowledge because of improper placement of articles and reports. To remedy this, Shephard recommends that "an orderly input of information be achieved by greater cooperation among journal editors, professional societies, medical organizations, and information specialists". The goal would be an international communication network.

The responsibility of an editor in the grave new world would be greater than in the tired old one. He would have to direct an original contribution to an appropriate medium rather than to the journal with which he is associated. He would be impelled to rush life-saving intelligence to all points —his judgment and attitudes would be critical, his enthusiasms or misgivings would determine his action.

It is a coincidence that Shephard's comparison of medical journals to "excretory organs" coincides with the less euphemistic opinion of some of the contributors to *Adventures* that contemporary periodicals contain "excretion", "ordure", and "sewage".

Should those responsible for a journal be concerned about the restless times? Should they subject themselves to self-examination in an attempt to determine whether they are contributing to the pollution of the scientific atmosphere by publishing in an expensive manner repetitive, inappropriate, or obsolete material for apathetic readers? Should they coordinate their efforts with editors of other journals and with agencies involved in promoting continuing education and in planning regional medical programs? What would be the disadvantages and risks of such integration? Would "referees" gain too much power? Should an attempt be made to study modern concepts of information collection, storage, and retrieval and principles of the information theory?

It is not difficult to foresee the day when a scientific paper from an information source (author) is fed into the transmitter (information dissemination organization) so that after circulating through its solid state innards to the receiver (screen, newspaper, tape, readout), it finds its way to the destination (reader). Along every pathway, computerized editors wielding electronic blue pencils stand ready to switch out disruptive elements—entropy—in the communication system.

Will the *Rocky Mountain Medical Journal's* cover of graceful aspens and cool, trout-filled mountain streams be coded in the "system" as "noise", a disturbance not representing a message from any part of a specific source and thus earmarked for obliteration in order to make the feedback intelligible?

Perhaps.

More likely our attitude will be one of expectation rather than apprehension: "For all that moveth doth in Change delight." Osler stated it well: change is the lifeblood of medicine.

The day may soon arrive when, at a receptive moment, we will dial the proper channel, aspens will brighten the television screen, music (the *Academic Festival Overture* or *Pictures at an Exhibition*) will permeate our study, and, as we sip from a mind expander, we will watch and listen to the latest from everywhere.

Marcus J. Smith, MD*
Santa Fe, New Mexico

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*Scientific Editor for New Mexico of the *Rocky Mountain Medical Journal*.

Hyperparathyroidism*

Parathyroid hormone immunoassay in clinical diagnosis

Robert C. McCroskey, MD, and R. Philip Eaton, MD,
Albuquerque, New Mexico

Radioimmunoassay of parathyroid hormone is the only direct measurement of parathyroid function. It proved invaluable in the diagnosis of the six patients illustrated in this paper.

WHILE THE DIFFERENTIAL diagnosis of hypercalcemia is a common clinical problem, the incidence of parathyroid disease as an etiology is small. Boonstra and Jackson[1] found hyperparathyroidism in 31 of 25,847 consecutive individuals who appeared for examination at their general medical clinic, an incidence of one case of hyperparathyroidism for every 834 patients seen. Gordon and associates,[2] studying a high-risk population of patients with either kidney stones, peptic ulcer, pancreatitis, or hypertension found 105 cases of hyperparathyroidism in approximately 8,000 cases studied, an incidence of one in every 80 patients.

Definite diagnosis of hyperparathyroidism in a hypercalcemic patient has been a vexing problem. Many tests have been proposed and used throughout the years in an attempt to separate those patients with primary hyperparathyroidism from a larger population with hypercalcemia due to diverse causes. All tests proposed have yielded many false positive and false negative results[4,5,6] and have generally been found wanting in individual cases. These include serum inorganic phosphate, 24-hour urinary phosphate response to the intravenous infusion of calcium, response to the intravenous infusion of calcium, response to glucocorticoid administration, ionized serum calcium concentration, urinary excretion of hydroxyproline, phosphate deprivation, and urinary calcium response to hypertonic sodium chloride infusion.

An exception to this frustrating problem may be the radioimmunoassay of parathyroid hormone (parathormone, PTH) in the diagnosis of primary hyperparathyroidism. Although radioimmunoassay of PTH was first reported in 1963,[7] the assay has been a research tool and unavailable to the average practitioner. This has been unfortunate, since PTH assay will allow a clear separation of patients with primary hyperparathyroidism from patients with hypercalcemia due to diverse causes.

Reiss and Canterbury[8] report that their assay yielded elevated levels of PTH in all of 84 patients with surgically confirmed primary hyperparathyroidism. Furthermore, in 15 cases of *hypo*parathyroidism PTH was undetectable by their assay. When serum calcium was elevated in normal subjects by calcium infusions, immunoreactive PTH levels invariably decreased, confirming the expected normal inverse relationship between serum calcium and PTH. Similarly, in parathyroid hyperplasia these authors[9] demonstrated a decrease in PTH levels when serum calcium was increased above basal values, but in parathyroid adenomas no suppression was observed. Others have reported that adenomas will suppress with calcium infusion.[10]

Potts[10] reported that the clinical utility of the PTH assay was further improved by plotting PTH levels against serum calcium concentrations. This observation is illustrated in Fig. 1, with data obtained from the commercially available PTH assay used in our management of patients (see Fig. 1). As can be appreciated from the graph, there is, in

*This paper was presented in part at the American College of Physicians Regional Meeting December 1971 in Albuquerque, New Mexico and is from the Department of Medicine, Division of Endocrinology, University of New Mexico School of Medicine and Veterans Administration Hospital, Albuquerque, New Mexico 87106.

almost all cases, clear separation of normal patients from those with hyperparathyroidism (primary or ectopic). There is also a good separation of those patients with hyperparathyroidism from patients with other causes of hypercalcemia. Hyperparathyroidism secondary to a tumor-producing ectopic parathormone or parathormone-like substance cannot be distinguished from primary hyperparathyroidism.

Six cases are reported in which the radioimmunoassay was utilized in an attempt to clarify the etiology of hypercalcemia or to prove the presence of hyperparathyroidism in patients with manifestations of that disease but with normal serum calcium determinations. In all cases, other causes of hypercalcemia were considered unlikely on the basis of the following tests: hyperthyroidism by T_3 and T_4 determinations, sarcoid by chest x-ray and serum protein electrophoresis, the milk-alkali syndrome and Vitamin D intoxication by history, multiple myeloma by serum protein electrophoresis, and metastatic bone disease by bone survey and bone scan where indicated.

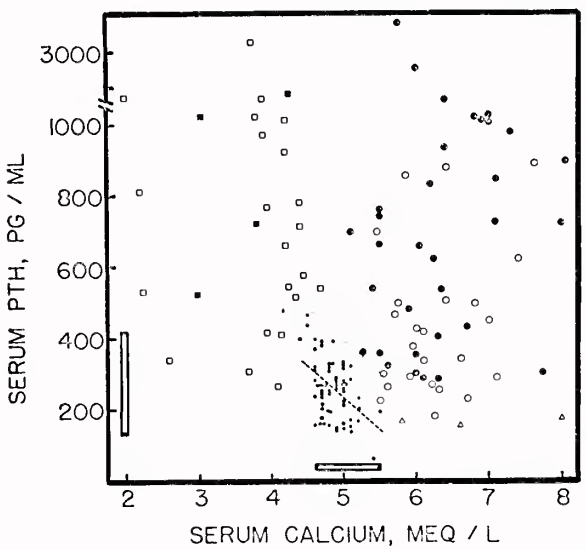

*Fig. 1. Serum PTH as a function of serum calcium in normal subjects (•); patients with surgically proven primary hyperparathyroidism (●); patients with hypocalcemia due to renal disease (□) or to other causes (■); patients with hypercalcemia due to either to Paget's disease of bone, hypervitaminosis D, or metastatic disease (△); and patients with hypercalcemia due to ectopic production of PTH by non-endocrine tumors (0). The dashed line was determined by linear regression analysis of the 61 normal points (r=0.476, p 0.001). The dotted lines are parallel to the regression line and 2 S.D. above and below it. The solid black bars indicate the normal ranges for serum PTH and serum calcium.**

*This graph reproduced with the permission of Dr. Charles D. Hawker. Information regarding the parathyroid hormone immunoassay can be obtained by writing: Charles D. Hawker, Ph.D., Laboratory Procedures Division of the Upjohn Company, Kalamazoo, Michigan 49001.

CASE REPORTS

Case 1: A 49-year-old white male had diagnosis of chronic lymphocytic leukemia in 1968. He was followed on no medication until May 1971 when a routine serum calcium determination was found to be 13.3 mg per cent (normal 9-11.5 mg per cent). Careful questioning failed to disclose any symptoms suggestive of hypercalcemia such as weakness, mental changes, polyuria, renal stones, or constipation. Physical examination disclosed only a palpable spleen tip. Abnormal laboratory studies included a WBC count of 37,000 with 94 per cent lymphocytes, platelet count of 102,000, uric acid 7.4, calcium 13.5 mg per cent and 12.7 mg per cent, phosphate 2.0 mg per cent and 2.9 mg per cent (normal 2.9 mg per cent—4.8 mg per cent). Baseline PTH level was elevated, 432 picrograms/ml (normal 200 pg/ml ∓ 85 pg/ml), with levels rising to 941 pg/ml after left neck massage and 1,296 pg/ml after right neck massage. The patient was considered to have hyperparathyroidism on the basis of the PTH values. At operation three large glands were identified which demonstrated chief cell hyperplasia. On the day following surgery the serum calcium fell from a preoperative value of 14.1 mg per cent to 10.0 mg per cent and remained between 9 and 10 mg per cent during the three months of observation.

A fortuitous calcium determination in this man led to the ultimate diagnosis of hyperparathyroidism. Immunoreactive PTH levels were markedly elevated for the observed elevation in serum calcium. Bilateral neck massage caused further rise in PTH values suggesting the presence of abnormal glandular tissue bilaterally which was surgically confirmed (neck massage in normal subjects causes no appreciable rise in PTH levels[9]).

Case 2: A 56-year-old white male passed "four kidney stones" in April 1971. Past history revealed perhaps 100 episodes of urinary stones over the previous 11 years. Physical examination demonstrated band keratopathy and I.V.P. revealed several small calculi within the right renal pelvis and a single calculus in the left pelvis. Serum calcium was elevated to 13.5 mg per cent and the phosphorous level was 2.3 mg per cent. Clinical records were obtained from another hospital dating to 1960 which revealed the presence of hypercalcemia (12.4 mg per cent) and bilateral renal lithiasis on x-ray examination noted during workup for an episode of ureteral colic. Baseline

PTH level was elevated to 355 pg/ml and was unchanged by left neck massage (351 pg/ml) or by right neck massage (356 pg/ml). The patient was considered to have primary hyperparathyroidism and underwent neck exploration in July with removal of a large parathyroid adenoma of the left inferior gland, measuring 3 x 2 x 0.6 cm and weighing 3.5 grams. Following operation the serum calcium fell promptly to normocalcemic range.

This man had documented renal lithiasis and hypercalcemia for 11 years. PTH levels were elevated establishing the diagnosis of hyperparathyroidism but did not rise as expected with neck massage. However, the adenomatous gland was located very low in the neck with only a small portion of the gland extending above the sternum and manipulation of the gland was probably not obtained during neck massage.

Case 3: A 78-year-old male with transitional cell carcinoma of the bladder was noted during routine urological evaluation to have hypercalcemia, and six serum calcium determinations were found to range from 10.9 to 12.5 mg per cent. The patient's intermittent hypercalcemia was thought possibly to be due to thiazide therapy[11] for hypertension and this was discontinued. He was followed in urology and endocrine clinics over the next few months with two normal calcium values being obtained (11.2 mg per cent and 10.9 mg per cent). In August he was readmitted to the hospital for control of hypertension for which he had been taking no medication since his previous hospitalization in April 1971. Serum calcium determinations were 11.4 mg per cent, 11.5 mg per cent, and 11.7 mg per cent before treatment. Blood pressure was well controlled with phenobarbitol, Aldomet, and hydrochlorothiazide. Serum PTH level was elevated to 297 pg/ml which is inappropriately high for a calcium of 11.5 mg per cent. It was thought that this patient had primary hyperparathyroidism in addition to recurrent bladder cancer; but his overall condition and age made a surgical approach to either of these conditions hazardous, and he was discharged to be followed in endocrine and urology clinics.

This patient has had intermittently elevated calcium determinations for two years. No secondary cause of hypercalcemia has been uncovered with the possible exception of hydrochlorothiazide therapy and this cause seems unlikely since calcium values have been elevated in the absence of therapy. His PTH levels are modestly elevated for his calcium levels. In view of his poor overall condition and the modest elevation in serum calcium, surgery was not indicated at this time.

Case 4: In April 1971 a 57-year-old male with chronic bronchitis and idiopathic pulmonary fibrosis was noted by his family to have mental confusion which progressed to mental obtundation. On physical examination there was a 4 x 4 cm rubbery, subcutaneous mass in his second left intercostal space, marked cyanosis and clubbing, and bilateral basal rales. Chest x-ray showed a left lower lobe pneumonia. Serum calcium was elevated to 14.0 mg per cent and the patient was considered to have mental obtundation, secondary to hypercalcemia. Treatment was instituted with I.V. fluids and Lasix therapy causing a diuresis of 700-800 cc/hour. The serum calcium peaked at 16.7 mg per cent and then gradually returned to normal with diuretic therapy in association with some improvement in mental function. In June a biopsy of the nodule on the left chest wall disclosed metastatic squamous cell carcinoma, with a primary pulmonary site suspected underlying the pneumonia. Bone survey showed questionable lytic lesions in both greater trachanteric areas. Serum PTH was elevated to 504 pg/ml at a time when serum calcium was 12.8 mg per cent. The patient's course was rapidly downhill, and he died in June. Postmortem examination showed a large primary squamous cell carcinoma of the lung (left upper lobe) with metasteses to both lungs, heart, liver, adrenals, pancreas, jejunum, brain, and mediastinal lymph nodes and no bony metasteses. The parathyroid glands were grossly normal but no histologic sections were obtained. A specimen of the lung tumor did not contain PTH activity by immunoassay.

This patient has two possible etiologies for hypercalcemia—primary hyperparathyroidism or an ectopic PTH-producing tumor. Despite the lack of PTH in the tumor specimen examined, ectopic production of PTH is still likely since only a small quantity of the total volume of the tumor was assayed for PTH activity.

Case 5: A 61-year-old male had syncopal episodes. Complete neurological workup disclosed moderately severe obstructive pulmonary disease and borderline elevations of serum calcium. Serum calciums on five occasions were: 11.3 mg per cent, 11.0 mg per cent, 11.6 mg per cent, 11.6 mg per cent, and 12.0 mg per cent. Serum PTH was normal at 198 pg/ml and a simultaneous calcium value was 10.4 mg per cent indicating a normal PTH-Calcium relationship. No neck exploration was undertaken.

Routine serum calcium determination disclosed a borderline elevation of calcium for this laboratory and four repeat specimens disclosed two normal and two slightly elevated values. This patient was suspected of having primary hyperparathyroidism, but his normal PTH values associated with a normal calcium level on the same specimen did not bear out the diagnosis. While no reason for his intermittent hypercalcemia was apparent, neck exploration was unjustified by the finding of normal PTH levels.

Case 6: A 52-year-old male had had numerous past admissions to the hospital for central nervous system syphilis, chronic alcoholism, schizophrenia,

and fractures of both femurs sustained in an accident. A urinary bladder calculus was removed operatively and found to consist of calcium carbonates, phosphates, and urates. The patient also had duodenal ulcer disease with obstruction and bleeding, treated with vagotomy and pyloroplasty.

On followup for abdominal pain, which was easily controlled with antacids, he was found to have polyuria and polydipsia with 24-hour urine volumes of about 3,500 cc/daily. Serum calciums were 10.1 mg per cent, 10.5 mg per cent, and 10.9 mg per cent. Basal PTH level was elevated to 618 ng/ml in association with a serum calcium of 10.4 mg per cent. After calcium infusion the PTH fell to 365 ng/ml and the calcium rose to 14.8 mg per cent. Surgical exploration of the neck was advised but the patient refused the procedure and was lost to followup.

This patient had many symptoms suggestive of hyperparathyroidism but always demonstrated normal serum calcium levels. The markedly elevated PTH level which fell by about 50 per cent following calcium infusion established the presumptive diagnosis of hyperparathyroidism. There was considerable debate as to whether a person with presumed normocalcemic hyperparathyroidism should be operated upon, but it was finally decided that the risk of neck exploration in this very unreliable man was less than that due to a possible hypercalcemic crisis in future months or years.

Conclusion

Although experience with the recently available immunoassay for PTH is still limited, the cumulative experience to date looks promising. For the first time the clinician has available a direct measurement of parathyroid function and need not rely on indirect tests which have generally been disappointing. Given a patient with hypercalcemia and inappropriate PTH levels, one can reasonably conclude that such a patient has hyperparathyroidism or a tumor secreting an ectopic PTH or PTH-like material. A patient with hypercalcemia in association with low PTH levels must have some other cause for his hypercalcemia. •

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The innocent heart murmur*

Robert F. Castle, MD, Albuquerque, New Mexico

KNOWLEDGE CONCERNING innocent murmurs has increased considerably in recent years. At one time, the existence of truly innocent murmurs was questioned, resulting in much iatrogenic disability. Presently, there is a tendency to diagnose an innocent murmur by exclusion, that is, by finding no other clinical or laboratory evidence of cardiac disease. This approach is also undesirable. It increases costs in terms of the physician's time and the patient's pocketbook. In addition, a nagging doubt may linger on the part of both physician and patient concerning a murmur's significance. Finally, a truly organic lesion such as mild mitral regurgitation or a small interventricular septal defect may remain undiagnosed since the murmur may be the only clue.

Fortunately, innocent murmurs possess identifying characteristics which permit positive diagnosis in the great majority of instances. This article will present a clinical classification of these murmurs. An accompanying table presents their differential diagnosis. In addition, the approach to the patient and/or parents of a child with an innocent murmur will be discussed.

Although innocent murmurs occur in all age groups, they are most common in childhood and adolescence. A major reason is that the smaller and thinner thorax of the child facilitates transmission of cardiovascular sound to the chest wall. Furthermore, many young patients are anxious during the examination, and their increased cardiac output produces and/or exaggerates several innocent murmurs. Finally, many children are primarily seen by physicians when they have febrile illnesses, another situation in which cardiac output increases and murmurs become louder. The exact incidence of innocent murmurs is unknown, but probably nearly 100 per cent of children exhibit them at one time or other.

Specific Murmurs

Innocent murmurs may be grouped into three categories. There are those systolic ejection murmurs which arise in the ventricular outflow tracts and/or near the aortic and pulmonic valves. The vibratory murmur and the pulmonic ejection murmur are the two representatives. Another group has a vascular origin and includes the venous hum, carotid bruit, and the mammary souffle. There is a seldom encountered and less well-defined group which may have an extracardiac origin. These are sometimes termed cardiorespiratory murmurs.

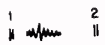
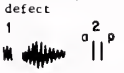
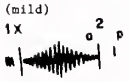
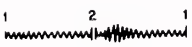
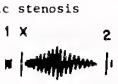
Vibratory murmur: This musical, early-mid systolic murmur, originally described by Still in 1909,[1] is common in children between three and ten years of age. It has other names including "Still's murmur", "fiddle string murmur", and "twanging string murmur". The term "vibratory" murmur is generally accepted since the murmur approximates the sound of a vibratory tuning fork with a frequency of 75 to 150 cycles per second.

The low pitch of this murmur makes its musicality less obvious than is the case with higher pitched musical murmurs. It is often described as "groaning". It is generally most intense over the lower left sternal border or midway between this location and the apex. It is rarely maximal at the apex. Position changes are common. Generally, the murmur

*From the Department of Pediatrics, University of New Mexico School of Medicine, Albuquerque, New Mexico. Dr. Castle is Professor of Pediatrics.

TABLE 1

CLINICAL FINDINGS IN COMMON INNOCENT HEART MURMURS

Designation	Site of Maximal Intensity	Characteristics	Organic Lesions to be Differentiated	Distinguishing Features of Organic Lesions
1. Vibratory Murmur	Lower left sternal border and/or mid-precordium 	Early-mid systolic murmur of low to medium pitch; musical murmur with "groaning"quality. Peak incidence in ages 3-10 years.	a. Ventricular septal defect (small)	a. VSD murmur is typically holosystolic, usually louder and higher pitched, frequently associated with thrill and more widely transmitted. Murmur of very small VSD may be only early-mid systolic in timing but it is high pitched and blowing in character.
			b. Mitral regurgitation (typical)	b. MR murmur, though not necessarily louder is holosystolic. It is higher pitched and usually transmitted to axilla and posterior lung bases.
2. Pulmonic Ejection Murmur	Pulmonic area; may transmit along left sternal border and toward apex	Early-mid systolic, often blowing, low to medium pitched murmur. Peak incidence in ages 10-20 years.	a. Atrial septal defect 	a. ASD systolic murmur is usually louder and longer. Wide and nearly constant second sound splitting is usual. In children under 6 years of age, however, the splitting pattern may be normal.
			b. Pulmonic stenosis (mild) 	b. P.S. murmur is louder, longer and usually associated with thrill. Early systolic pulmonic ejection sound is common. Second sound is widely split on expiration.
3. Venous Hum	Right neck; upper right sternal border 	Continuous, low to medium pitched hum with early diastolic accentuation. Occasionally musical. Peak incidence in ages 3-15 years.	Patent ductus arteriosus	PDA murmur is maximal over pulmonic area and does not disappear in supine position.
4. Carotid Bruit	Right neck and right supraclavicular fossa	Low to medium pitched early-mid systolic murmur of brief duration. Peak incidence in ages 10-20 years.	Aortic stenosis 	Although audible in neck, murmur of aortic stenosis is usually maximal over second right intercostal space and less frequently along left sternal border; suprasternal notch thrill is present in aortic stenosis.
5. Mammary Souffle	Second to fourth right and/or left intercostal spaces	Medium to high pitched continuous murmur with mid systolic accentuation. Common in late pregnancy and post partum period, especially during lactation.	a. Patent ductus arteriosus (See 3 above)	PDA murmur reaches maximal intensity at or just slightly before second heart sound
			b. Arteriovenous fistula	Murmur of fistula often louder with associated thrill. However, murmur pattern may be otherwise similar. Disappearance after lactation ceases indicates mammary souffle.

is loudest when the patient is supine. Less frequently, it is loudest in the sitting position. Exercise may increase its intensity.

Recent studies utilizing intracardiac phonocardiography, indicate that the vibratory murmur arises in the outflow tract of the left ventricle or at the aortic valve itself.[2,3] Thus the vibratory murmur probably is the left-sided counterpart of another common innocent murmur, the pulmonic ejection murmur (described below). Two organic lesions commonly confused with the vibratory murmur are ventricular septal defect and mitral regurgitation (see Table 1).

An aortic ejection murmur is at times audible in older adults.[4] This has been ascribed to fibrosis and calcification of the bases of the aortic valve leaflets without impairment of valve function. These murmurs may be noisy or musical. They often have high frequency components, unlike the vibratory murmur. They frequently are maximal over the upper right sternal border but often also transmit well to the apex. Other clinical and laboratory evidence for valve disease is lacking.

Pulmonic Ejection Murmur: Pulmonary ejection murmurs arise near the pulmonary valve. They are associated with the rapid ejection of blood into the pulmonary artery in early systole. Intracardiac phonocardiography demonstrates this murmur in the proximal pulmonary artery in all normal individuals.[5]

Innocent pulmonary ejection murmurs are often audible on routine auscultation. They are especially common during the second decade. They are relatively low-pitched, early-mid systolic murmurs, often

possessing a blowing character. They do not have the "groaning" musical character of the vibratory murmur. They are maximal over the upper left sternal border and usually become louder when the patient lies down because of a positional increase in cardiac output. Other physiologic and pathologic causes of increased cardiac output accentuate these murmurs, such as exercise, anxiety, hyperthyroidism, and anemia. The innocent pulmonary ejection murmur must be distinguished from the systolic murmur accompanying atrial septal defects and pulmonic stenosis.

Venous Hums: Venous hums are common innocent continuous murmurs. They arise in association with rapid blood flow just above or below the medial third of the right clavicle. They may be heard some distance above this area in the right neck. They can be heard on the left side and over both the right and left upper sternal borders but they are rarely maximal in these locations. The venous hum is generally low pitched. It does indeed have a continuous humming quality. Occasionally, a high-pitched musical component is superimposed. There is an early diastolic accentuation since venous flow is most rapid at this time. Extreme positional variation characterizes the venous hum, and it diminishes considerably or disappears when the patient lies down. Changing head position or occluding the veins above the stethoscope produces the same result. Exercise or other states associated with increased cardiac output increase this murmur. The continuous murmur of patent ductus need not be confused with the venous hum.

Carotid Bruits: A short, low-pitched early systolic murmur is often heard in the right neck above the clavicle.[6] Occasionally the murmur is bilateral, but the intensity is almost always less on the left. This murmur can be loud and may be associated with a supraclavicular thrill. However, a suprasternal notch or precordial thrill is absent. The murmur diminishes when the shoulders are hyperextended.[7] This murmur is common in adolescents and young adults. It arises when the major arteries to the head and upper extremities are set in vibration during the rapid systolic ejection phase. The differentiation from a transmitted murmur of aortic stenosis usually poses no major problem.

Mammary Souffle: During late pregnancy and lactation, blood supply to the breasts increases. Parasternal arterial murmurs may develop, reflecting this augmented flow. These murmurs generally are louder over the upper sternal borders.[8] Most commonly, they are unilateral. The mammary souffle often extends into diastole but the systolic component is much louder, and peak intensity is reached by midsystole. This murmur may have high-pitched components. It is usually louder when the patient is supine. Firm pressure with the stethoscope often causes the murmur to disappear. Intensity of the murmur tends to vary considerably from one examination to the next. The murmur may occasionally be mistaken for that of patent ductus or a systemic arteriovenous fistula.

Cardiorespiratory Murmurs: These uncommon murmurs are thought to have an extracardiac origin. They are most often heard in patients with chest deformities such as kyphosocoliosis and pectus excavatum. These murmurs tend to be bizarre in timing and character. They may be associated with clicks. They are often heard at a heart-lung border, and marked positional and respiratory variation is usual.

During the past few years, conclusive evidence has accumulated that many late systolic murmurs, often with associated clicks, represent atypical mitral regurgitation.[9] This syndrome is seen most frequently in young females. It must be strongly considered, particularly if the murmur is apical in location. Cycle-to-cycle respiratory and positional variation does not exclude possibility of this atypical mitral murmur.

Discussing Innocent Murmurs

When dealing with patients or parents of patients with innocent murmurs, the physician should provide positive reassurance about the normality of these murmurs. Many patients equate the term murmur with heart disease. It is helpful to point out that all normal individuals have murmurs which can be recorded with special technics (intracardiac phonocardiography). One may add that with a thin chest wall and a vigorous circulation, many of these murmurs can be heard with the stethoscope. An excellent pamphlet for parents is available in English and Spanish from the American Heart Association.[10]

Conclusions

The overwhelming majority of innocent murmurs can be correctly identified by means of careful examination. However, occasional instances will arise in which the physician is uncertain as to the significance of a murmur. In this situation, it is important that the patient and parent not be unduly alarmed. The physician must avoid indicating the presence of heart disease until firm evidence for it is established. •

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Imagine yourself in the patient's position

George B. Markle IV, MD, Carlsbad, New Mexico

"It is worthwhile to secure the happiness of the patient as well as to prolong his life."—William J. Mayo

DOCTOR, CAN YOU picture yourself, a person of considerable prestige, a man or woman of distinction, one whose image is that of authority and command, in the position of wretched mortification required for a proctosigmoidoscopic examination? Far more of us have wielded the sigmoidoscope than have had it used upon ourselves. It is well for us to think about how our patients feel about this sort of assault on their dignity.

In the name of science, and with generally good motives, we perform on our patients some ghastly procedures, and we subject them to countless inconveniences as well as indignities, not to mention expenses. Think back to our first days in medical school. We were rightly horrified at some of the things that we were seeing then for the first time—amputations or other mutilating operations, insertions of catheters, cannulas, needles, and trochars, painful diagnostic and therapeutic procedures, and long periods of seemingly unnecessary incarceration in institutions that are somewhat frightening in spite of attempts by interior decorators to disguise them. We viewed these horrors rather subjectively at first, flinching as the needle went in, our eyes watering as the cornea was touched. Then we became more objective and no longer suffered with the patient. And this was necessary and proper, for what good is a physician who will not draw blood for a test or incise a fluctuant abscess? But then some of us became not only objective but forgetful of how it all once seemed to be. We have forgotten how the layman yet feels about the unpleasantness that unfortunately accompanies medical or surgical care.

Surely the best way to understand a person and his problems is to have the same problem as that person, endure what he endures, suffer as he suffers. The Indians have a saying that one should not judge a man until he has walked in that man's moccasins for a moon. God forbid that we should go through all the illnesses that we treat or have all the operations we perform so casually on others. However, here and there we are allowed insights into how our patients feel. We may have ills ourselves, or illness may occur in those near to us, and we then have the opportunity to glimpse the other side of the picture.

Some of my colleagues wonder at my "fanatical" determination to get my patients home from the hospital as fast as possible. The answer is that I was resensitized to the frustration and annoyance of hospitalization by my own experience in a military hospital many years ago. I was admitted, unnecessarily by today's standards, for studies of a spot found in one lung by x-ray. It was days before the doctor in charge ever got around to examining me, days before the few simple tests were done, and more days before my case was reviewed. I had no idea what was going on, how serious it was, and the doctor who came around only once a day, if that often, never told me anything. Then there was a wait for the specialist to see my films, and finally some days later a board had to review my case. I was young, active, impatient to return to my new bride—and frightened. After two whole wasted weeks of frustration, I was released, vowing never to subject *my* patients to such treatment.

By personal experience I have proven to myself that most diagnostic procedures and minor operations are relatively painless. But some operations or diagnostic tests do

hurt as I have learned, not as a doctor, but as a husband or other relative, sitting by the bedside of a loved one. In this situation a few words of comfort, a little explanation, and an expression of optimistic concern by the doctor were much appreciated.

Wrapped in our scientific objectivity we are apt to forget the fears of our patients, seeing only the laboratory reports and other indices that are reassuring to us. It is best not to let these fears linger and grow, as they will if not laid to rest. The late Dr. Howard Gray of the Mayo Clinic had a wonderful way of reassuring his patients. Even if the case were only a routine gallbladder he would tell the family immediately, and the patient later when he was awake, "I looked all around in there and there were no tumors or cancers or anything else. Just an old gallbladder full of stones."

Recently we have begun to appreciate the fact that an intensive care unit may have an adverse psychologic effect upon our patients. It is frightening to many people to awaken in this strange atmosphere, isolated from family and surrounded by complex machinery either beeping incessantly or flashing little red lights. In the next bed someone is having some sort of crisis and doctors and nurses are rushing around applying various mechanical devices that the other patients don't understand. They feel alone, wondering how sick they must be to deserve all this sophisticated paraphernalia. Whispering voices and bits of undecipherable medical jargon convince them that their prognosis is nothing but ominous.

There have been some good articles on the psychologic trauma of hospitalization of children. We need to think also of the psychologic effects on adults too. Too often the patient sees himself " 'Mongst horrid shapes, and shrieks, and sights unholy"*, not to mention uncouth smells. Even the minor things like that stupid little gown that opens on an unobstructed view of one's tender behind, or that enema that really isn't necessary but is given because that's the way the attending physician was taught 20 years ago, or the prep that goes a mile beyond conceivable usefulness; all are depressing if not downright irritating. Let's eliminate these when we can. If we picture ourselves in the patient's position we will practice the Golden Rule more often.

Lastly but not least, don't forget the shock when the patient sees his bill. I've seen a few that made me shudder. What do they do to the unsuspecting patient who has no idea that hundreds of dollars worth of tests could possibly be done on the small test tube of blood he was forced to relinquish?

We have been well admonished that, "The good physician cures sometimes, relieves frequently and comforts always." To this let us add, "and discomforts, frightens, and embarasses seldom." •

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*John Milton: *L'Allegro.*

Treatment of facial pain with a needle

Gerald N. Gold, MD, Albuquerque, New Mexico

An effective and safe method for percutaneous radiofrequency coagulation of the gasserian ganglion.

THIS ARTICLE IS TO introduce a surgical technic for the treatment of trigeminal neuralgia which is superior and much safer than the standard procedures currently in use in many parts of this country. The surgical procedures commonly used for relief of pain in the distribution of the fifth cranial nerve are listed in Table 1 and classified into those that cause temporary or permanent denervation. The temporary procedures are particularly valuable as an aid to diagnosis and in treatment of patients with a short life expectancy. Properly done, they have a negligible morbidity, and they permit the patient to experience the dysesthesias produced by denervation, helping the physician recognize those patients who will not tolerate a permanent denervation. Furthermore, in cases with pain in the first division, supraorbital and supratrochlear neurectomy have the distinct advantage of preserving corneal sensation.

Procedures for permanent denervation of the trigeminal nerves have certain unavoidable hazards. Table 2 lists the more frequent complications and their incidence. The mortality figures reflect in some cases the general problem of performing major surgical procedures with anesthesia on the elderly population in whom this condition is most prevalent. Deaths may be due to myocardial infarction from hypotension during anesthesia or cerebral infarction secondary to the common use of the sitting position for the subtemporal approach. Some surgeons with rigid case selection have no mortality in large series. The high recurrence rate of certain procedures reflects the price paid by surgeons who are attempting to avoid other complications, such as painful dysesthesias (anesthesia dolorosa) or corneal irritation secondary to more extensive denervation procedures. Not enough time has elapsed for an accurate assessment of the newer transtentorial microsurgical procedures on the fifth nerve rootlets, but the magnitude of the surgical undertaking and the currently observed

TABLE 1

PROCEDURES FOR DENERVATION OF FIFTH CRANIAL NERVE

Temporary	Permanent
Peripheral Nerve Avulsion	Middle fossa approach
Supra-orbital, Supratrochlear	Extradural rhizotomy
Infra-orbital	Intradural rhizotomy
Alveolar	Compression
Mental	Decompression
	Transtentorial microscopic rhizotomy
Peripheral Nerve Injection	
(Alcohol or phenol)	Posterior fossa approach
Peripheral branches as above	Rhizotomy
Mandibular or Maxillary divisions at base of skull	Medullary tractotomy
	Stereotaxic approach
	Alcohol or phenol injection of trigeminal ganglion
	Electrocoagulation of trigeminal ganglion and rootlets

TABLE 2

COMPLICATION OF VARIOUS PERMANENT PROCEDURES FOR DENERVATION OF FIFTH CRANIAL NERVES (in per cent)[2,3]

Procedure	Mortality	Satisfactory Relief	Recurrence	Anesthesia Dolorosa	Temp. Facial Paralysis	Keratitis	Diplopia	Wound Infection	Hematoma
Middle fossa Rhizotomy	1.4	95 to 99	12	6.4	6.7	5.4	1	0.5	0.3
Posterior fossa Rhizotomy	2.8	100	9	2.5	5	2.5		0.4	
Middle fossa Decompression operations	0.8		23		9				
Posterior fossa Medullary tractotomy	1.6	89	14	0.5					

results would suggest that these procedures carry a higher mortality than the temporal extradural approach, and if they are to be used at all, should be reserved for the hardiest of individuals.

In an effort to avoid the above complications, Dr. William Sweet at Massachusetts General Hospital introduced the procedure of radiofrequency coagulation of the gasserian ganglion and rootlets. Through his determined efforts the procedure has been refined and adopted in other parts of this country.

Technic

The procedure involves approaching the trigeminal ganglion anteriorly as described by Hartel. Local anesthesia is used in the skin, and as the foramen ovale is approached, the patient shows a sudden twinge of pain as paresthesia is produced. Needle advancement is halted immediately and x-rays confirm the needle's placement (Fig. 1). If this is satisfactory the patient is given intravenous Brevital® Sodium* (sodium methohexital) and the needle is advanced several millimeters forward after consciousness is lost. After consciousness returns, a stimulating current is passed through the needle tip. The patient experiences paresthesia in the distribution of the adjacent rootlets. By varying placement of the needle in the foramen, the desired part of the trigeminal complex can be selected. The patient receives another dose of Brevital®, and the needle tip with a temperature measuring device is heated with R F current to produce a controlled lesion. After consciousness returns, facial sensation is tested with a pin. If needed, Brevital® is given again and the needle tip heated to higher temperatures and for longer periods

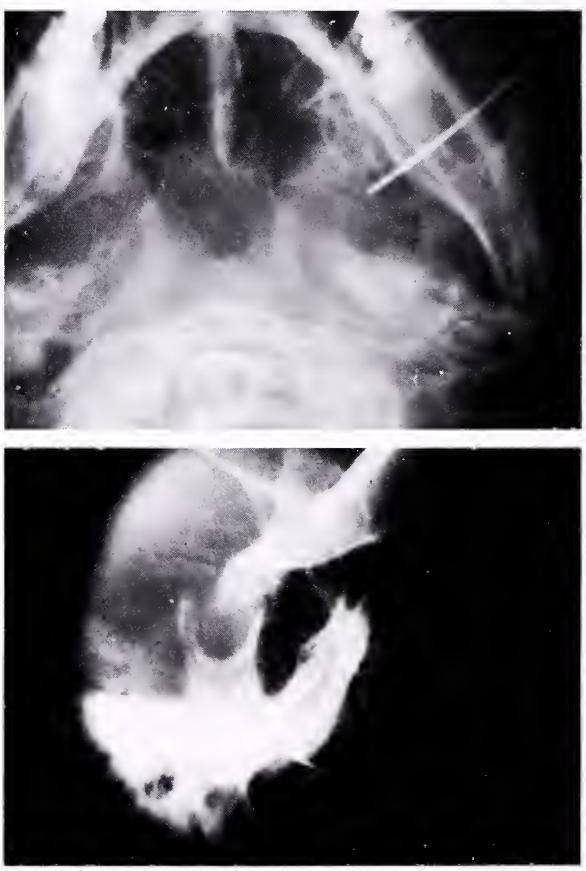

Fig. 1. Submental vertex (A, above) and lateral (B, below) x-rays of the skull showing electrode positioned within the trigeminal ganglion and rootlet zone.

*Brevital® Sodium, Eli Lilly Company, Indianapolis, Indiana.

of time until the desired result is obtained. In most instances, by careful temperature and time control, it is possible to produce hypalgesia with preserved light touch localization in the desired areas. Pain is relieved as long as hypalgesia persists, and there is no annoying numbness. In theory, the lesion should be permanent since it is made in the rootlet zone, but in some instances the hypalgesia fades in a few days or weeks, and then the procedure is simply repeated.

We are convinced that it is beneficial to attempt to leave as much cutaneous sensation as possible and deliberately lean towards a more conservative lesion at first operation. The patients are advised beforehand that a repeat procedure may be required if the hypalgesia fades, and most are grateful for the relatively normal facial sensation that is preserved. If we are treating malignant disease, or a patient who will not tolerate a repeat procedure, more extensive analgesia and even total anesthesia can be produced by using a more exposed needle tip and higher temperatures.

Advantages

There are several advantages of the above procedure. There is practically no morbidity. The procedure is especially well-suited for the elderly and infirm patients as it requires a minimal amount of time, only a two-day hospitalization, and the brief anesthesia is done in the supine position with minimal risk. In many patients relatively normal facial sensation can be preserved with pain relief, greatly minimizing the incidence of postoperative anesthesia dolorosa.

Complications

As more patients are treated in the above fashion, some minor complications have been reported. These include transient oculomotor nerve paresis, weakness of masseter and temporal muscles and dysesthesias in patients who have had total anesthesia produced. Recurrence of the pain has occurred with approximately the same frequency as in the compression-decompression type of operation. No deaths have been reported.

Summary

The technic of percutaneous radiofrequency coagulation of the gasserian ganglion and rootlets provides several distinct advantages over other methods of attack and should be strongly considered for all patients with facial neuralgia. •

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AS YOU LIKE IT...

A medical potpourri

Compiled by Andrew M. Babey, MD, Las Cruces, New Mexico

1. "For every American boy who wants to be a lawyer there must be a hundred who want to be aviation and automotive engineers. As a result, most male students in American schools learn the physical sciences a lot better than they learn the word sciences. You are an example of this. The word subjects like history, English, and other languages seem irrelevant nuisances that you'll never use. Partly for this reason and partly because schools and parents do an incredibly bad job of explaining the purpose of the word subjects to boys, American education is sadly off base in terms of future citizenship and in terms of what people need to lead happy useful lives." Anonymous, Letter to a Seventeen-Year-Old Son; Doremus, R., Lacy, E., and Rodman, G. (eds.): *Patterns in Writing.* New York: Holt, Rinehart and Winston, 1956, p. 376.

2. " As a matter of fact, the greatest invention of the human race is language (and thought: thinking is just talking to yourself, not out loud. You think with words, and you can't think without words)." *Ibid,* p. 377.

3. "It's a bad thing that there should be people like me around who don't know a volt from a velocity; bad for me and bad for the society of which I'm a part. My education was one-sided, I must admit. But it's a thousand times worse that the world is full of people who can't make a clear statement of a thought, which is another way of saying they can't think straight. Talking (either to yourself or somebody else) is a technique like building dynamos or growing turnips or removing tonsils. Centuries upon centuries went into developing the technique of talking. The finest men who ever lived gave their lives to it — and their contribution is, even in a strictly utilitarian sense, the most important." *Ibid,* p. 377.

4. "The ultra-materialists and the utilitarians tend to interpret all history in terms of things. They will explain the British Empire, for instance, by talking about the British coal and iron deposits. Undoubtedly, the British Empire would have been unlikely without the coal and iron. But the Chinese had more coal and iron than the British yet they went downhill during all the period in which coal and iron were most important. If you look for reasons for the difference, one thing worth noticing is that the English language kept getting better and better, more flexible, clearer, better able to express complicated things, during all the period of Britain's growth, while the Chinese language ceased to grow, tended to break up into dialects and to be a less and less useful instrument. A good case can be made for saying that Shakespeare (responsible for the greatest single advance in the English language) had more to do with the growth of the British Empire than his contemporary, Queen Elizabeth (who was a first-rate practitioner of politics), and that either of them was considerably more important than all the scientists and inventors put together." *Ibid,* p. 379.

5. "The German and American educational systems seem to be more alike than a lot of Americans realize. It's one of the things that worry me most about this country. Both our educational systems turn out enormous quantities of people sufficiently educated to be intelligent soldiers, skilled laborers, foremen, engineers, and third-rate lawyers and journalists. But as *people,* as human beings it is doubtful if these expensively educated Germans and Americans are as wise, as happy, as mentally healthy as a French peasant or a German peasant or an American pioneer of a century ago. Obviously, the answer isn't to go back to illiterate peasantry. An industrialized world requires more education, not less. But — and this is the important thing — it requires an education that gives to a man of our time the simple human understanding that the peasant and the pioneer used to get naturally out of the lives they led and the surroundings in which they grew up.

"Medicine, for instance, is a pretty good profession, especially for one of your temperament which combines a better-than-average knack of getting along with people and a mechanical and scientific bent. But too many of our American physicians, though expensively trained and full

of medical information, are dull fellows and unenlightened citizens because their knowledge of people is limited to their specialty. This fact shouldn't discourage you from being a doctor; it should simply discourage you from being the kind of doctor who thinks human beings are just digestive machines with pocketbooks, or that the circulation of the blood is more important than the Constitution of the United States." *Ibid,* p. 380.

6. "Organization — which is done with thoughts, with words — will always be more important, more difficult than any technique in the physical field. The organizers will always get the power because they perform the hardest job. The technicians will always be slaves to the word-artists until the technicians learn how to handle people, how to think logically outside their own narrow fields, how to talk, and how to live.

"It's worth noticing that in this highly scientific war almost every important leader has been conspicuously a non-scientist. Roosevelt organized the greatest industrial war effort ever seen, yet there are few Americans who know as little about the technical side of industry as F.D.R. did. Churchill is strictly a poet. He looks very deeply into his country's history, into its soul, and puts what he sees in words that make people act. His speech "we will fight in the streets . . . on the hills" is worth more in purely military terms than all the secret weapons that ever came out of German laboratories. Churchill got that way from reading Shakespeare. . . ." *Ibid,* p. 381.

7. "What does this add up to in terms of the decisions that you must soon make? In the first place, it is an argument against overspecialization at an early age in engineering or any other physical science. It is a plea that in choosing a college, picking courses, and above all in your general reading and interests, you try to develop that side of you which needs most development — namely, what the colleges call liberal arts or the humanities. These are the really practically important achievements of the human race; the ones which determine whether we go ahead or back. An engineer or a farmer, as well as a lawyer or a journalist, who doesn't know a little of them is likely to be frustrated as a person and not very useful as a citizen. . . ." *Ibid,* p. 382.

8. Strange, unfathomable happiness: the happiness of thinking, of seeking knowledge for its own sake. So much of our life is spent on solving problems to avoid immediate pain or to bring immediate profit; so much of our training is aimed at bringing 'practical' or 'pragmatic' effects — designing and running machines, buying, selling, cooking, furnishing, investing, spending; so many worthy results are obtained by purposeful planning and directed thinking — that we forget how true and inexhaustible is the happiness of pure knowing. Everyone has tasted it. It is born in children. It goes to school with them, and is too often killed there by tired or 'practical' teachers. But in some it survives, and unlike other delights it endures for the whole of life. To spend fifty or sixty years in studying the structure of fishes, or the relation between logic and language, or the history of the Incas, or the routes of comets, or the geometry of non-Euclidean space, or the literature of Iceland, or the anatomy of the brain; to acquire and systematize and record new knowledge on any of these subjects without any expectation of benefiting mankind except by extending its range of understanding: that is to pass a happy and valuable life, usually tempered at the close by regret that another fifty years could not be added, in which to learn more, and still more. It is the purest and least selfish satisfaction known to man, except those of creating a work of art and healing the sick. And it is, as Aristotle said, to share the activity of God himself: his eternal life of pure contemplation." Highet, Gilbert: *Man's Unconquerable Mind.* New York: Columbia University Press, 1954, pp. 101-102.

9. "The only real defeat is giving up, just as the only real aging is the erosion of one's ideals." Interview with Ralph Nader, *Playboy,* October 1968, p. 222.

10. "The Ulysses syndrome is a complex of mental and physical disorders which follows the discovery of a false-positive result in the course of routine laboratory screening. Because a physician worth his diagnostic salt would hardly pass up the challenge of such a result, he pursues the investigation 'just to make sure.' This pursuit may lead to other false-positives which in turn provoke further investigations, until after a long journey through investigative adventures — some physically, mentally, and financially traumatic — the patient finally returns to the point of departure, just as did Ulysses to Ithaca after a 20-year odyssey." S.V.: "Mythologic Eponyms Updated." Editorials, JAMA, May 1, 1972, p. 724.

11. "Laboratory calcium determination is not infallible. Considering the consequences of hypercalcemia in terms of additional workup and prognosis for the patient, perhaps the most important part of evaluating such a result is to verify it. To do so, have repeated serum calcium and total urinary calcium excretion determinations done. Laboratory results should be evaluated as to the quality control performance on the days the determinations were done. A borderline evaluation reported on a day when quality control standards were running near the upper limit of normal is considerably more suspect than several repeatedly elevated determinations at times when quality control data were near the mean or slightly below." Tracht, Myron E., MD: "How to Evaluate Hypercalcemia", *Consultant,* May 1972, p. 51.

Urinary fistula - - - gynecologic complication

Arnold H. Franzblau, MD, Carlsbad, New Mexico

A urologist discusses the various types of serious urologic complications, primarily fistulae, resulting from gynecologic surgery for benign gynecologic disease, illustrated by a series of cases.

GYNECOLOGIC SURGERY FOR benign disease is commonplace and is infrequently thought of as presenting much hazard to the patient. However, experience tells us that the surgeon who denies that his patients have complications is either inexperienced or not candid. Cautious gynecologic surgeons are aware of the potential hazard of clamping or ligating a ureter, or inadvertently damaging the bladder or urethra, with resultant ureterovaginal, ureteroretroperitoneal, vesicovaginal, or urethrovaginal fistulae.

When deemed necessary preoperative cystoscopic ureteral intubation may be of value in identification of the ureter as it traverses the operative field. Careful dissection and identification of all structures is of paramount importance. Distal ureteral injury is recognized as a hazard of pelvic surgery and occurs in 0.05 to 2.5 per cent of hysterectomies for benign disease.[1] Preoperative pyelography is of value in establishing the status of the urinary tract and is often essential when faced with a serious urologic complication.

Injuries that are recognized at the time of surgery can often be repaired successfully at the time of occurrence. Deligation of a ureter with ureteral intubation, or primary reanastomosis of a divided ureter can be carried out if the injury is identified at the time of original surgery.[2] Accidental bladder incisions can be immediately repaired, if recognized.[3]

Failure to recognize injury to ureter or bladder will usually result in leakage of urine from the vagina, flank pain, retroperitoneal mass or fever, or anuria if both ureters are ligated. Intravenous pyelography, cystoscopy, ureteral catheterization with bulb pyelograms, bladder irrigations with methylene blue or indigo carmine dye are some of the diagnostic technics of value.

Ureterovaginal fistula repair is most often effected by reanastomosis of ureter to bladder[4] (ureteroneocystostomy) when feasible, by bladder flap (Boari) when insufficient length of ureter is available, or by anastomosis of injured ureter to contralateral ureter (transuretero-ureterostomy).[5] When there has been severe damage to ureter or bladder ureterocutaneous anastomosis or ureteroileal anastomosis (isolated loop of ileum) may be necessary.

Vesicovaginal and urethrovaginal fistula can be repaired by standard technics with transvesical or transvaginal approach, depending on the location of the fistula in the bladder and the experience of the surgeon. Unless recognition and repair are immediately carried out, various authorities recommend waiting six weeks to six months for tissue edema to subside.[4]

The following case reports from a general urologic practice illustrate the various types of urologic trauma resultant from gynecologic surgery for benign disease, as well as various modalities of surgical repair with their complications and problems.

CASE REPORTS

Case 1: A 51-year-old female was seen in June 1968, having had vaginal hysterectomy six days previously in another city. Several days postoperative she spiked a fever to 103°, became oliguric, and BUN rose to 49. Drip IVP's revealed obstructed distal right ureter with proximal hydronephrosis (Fig. 1). Physical examination revealed only mild suprapubic discomfort; the right kidney was not palpable or tender. At cystoscopy intubation of the right ureter revealed complete obstruction at the 1- to 1.2-cm level. Right ureteroneocystostomy using a tunneling technic was carried out. Patient had a good postoperative result with essentially normal postoperative pyelograms at six and 12 months.

Case 2: In July 1965 a 38-year-old woman presented with a history that she had undergone transabdominal hysterectomy in another city four months previously and three weeks later began draining urine through her vagina. On admission the patient was found to have pyelonephritis of the left kidney, with hydronephrosis, and left ureterovaginal fistula, with the left ureter obstructed at the four-cm level. She underwent left ureteroneocystostomy. The left side of the pelvis was involved in a marked inflammatory reaction with a "frozen pelvis". The ureter was thickened with severe periureteritis, and it could be dissected distally only to the level of the pelvic brim at which point it was intimately adherent to the large bowel with a frozen pelvic mass involving the posterior lateral wall of the bladder. It was necessary to mobilize the left posterior lateral wall of the bladder and fix it to the psoas muscle in order to carry out the reanastomosis.[6] A left ureteroneocystostomy was carried out utilizing a tunnel technic. IVP three weeks postoperative revealed perpetuation of the hydronephrosis on the left down to the level of the mid sacrum at the site of the ureteroneocystostomy, but with adequate drainage. Patient was lost to further followup.

Fig. 1. Case 1: IVP showing obstructed distal right ureter with proximal hydronephrosis.

Case 3: A 60-year-old woman was initially seen June 1966, with history of having had "pelvic surgery" of unknown variety through an abdominal incision in another city some seven months previously with a subsequent vesicovaginal fistula. She had been wearing a Foley catheter in the interim. At cystoscopy there was a 1- by 2-cm vesicovaginal fistula to the left of the midline at the junction of the posterior wall and floor of the bladder. From the vaginal side of a gloved finger was inserted into the fistula and this was viewed endoscopically. *E. coli* infection was treated. Transvesical repair of the vesicovaginal fistula was carried out July 1, 1966. The patient had an uneventful postoperative recovery and when last seen, two and one-half months postoperatively, she was dry and voiding without difficulty.

Case 4: This patient, age 36, was admitted in August 1967 with history that in late February of that year she had a hysterectomy done in another city and shortly postoperative began leaking copious amounts of urine from the vagina. Subsequently at the same institution she had another laparotomy and an unsuccessful attempt was made to repair the leakage. She subsequently submitted to a third surgical operation at the same institution, which was said to have required over five hours, with an unsuccessful result and perpetuation of the urinary leakage from the vagina. Cystoscopically the left ureter could be catheterized only to 2 cm at which point complete obstruction was encountered. *E. coli* infection was treated. Left ureteroneocystostomy utilizing a tunnel technic was carried out, and ureter was noted to be obstructed 2 to 3 cm above the bladder base on the left side. Patient was seen one month postoperative without evidence of urinary leakage. She failed to return for further followup.

Case 5: A 40-year-old patient was seen in May 1967 with a large retroperitoneal mass in the left flank secondary to a ureteroretroperitoneal fistula with a urinary abscess (urinoma) following "some type of pelvic surgery" performed in another city. She had had operative transvaginal and flank drainage of the retroperitoneal mass and was draining urine from catheters inserted in these incisions. The patient was acutely ill with severe pseudomonas infection, and she initially

Fig. 2. Case 5: Postoperative IVP showing left caliectasis.

required intensive antibiotic and supportive therapy. Retrograde pyelography revealed an obstruction of the left ureter at the 6-cm level, and IVP revealed continuity of the ureter down to the level of the pelvic brim on the left side. Eventually she underwent a left ureteroneocystostomy with reanastomosis of the proximal stump of the left ureter to a tented up portion of the dome of the bladder on the left side. Followup IVP's revealed a well functioning left kidney with residual caliectasis and ureterectasis (Fig. 2). Serial IVP's done over the next three years revealed return of kidney function and radiographic appearance to normal (Fig. 3). IVP approximately three years after surgery revealed normal upper urinary tracts bilaterally without evidence of obstruction.

Case 6: A 37-year-old woman was initially seen November 1969, approximately two and one-half months following cesarean section for "pelvic disproportion". One week following section patient noted vaginal urinary leakage of rather massive proportions. Cystoscopically this patient was found to have four fistulae at the junction of the posterior wall and floor of the bladder, communicating with the vagina. An infection with Aerobacter aerogenes was first treated. Patient then underwent a transvesical excision and repair of these fistulae and was continent for 13 days when breakdown of the repair of the fistulae occurred along with massive wound breakdown in the ab-

Fig. 3. Case 5: One year later; normal pyelograms bilaterally.

Fig. 4. Case 7: Retrograde pyelogram shows left ureter obstructed at 2.5- to 3-cm level.

dominal incision involving skin and subcutaneous fat. She was then fitted with a Tassaway cup in the vagina which was connected to a leg bag urinal.[7] This prevented excoriation of the perineum. She was treated supportively for six months. Then a second repair of the vesicovaginal fistula was attempted. The posterior wall of the bladder was completely divided down to the fistulous tract, which was excised en block. A flap of left lateral bladder wall was swung down to cover the defect in the floor of the bladder. The vagina was repaired and closed separately. Pathologic report of the fistulous tract was "nonspecific chronic inflammation, foreign body granulomas, suture and fat necrosis". Postoperative recovery was prolonged. There was a Proteus urinary tract infection which responded to treatment. Patient was followed at regular intervals and obtained a good result with complete urinary continence.

Case 7: A 34-year-old woman was initially seen in April 1968 with a history that one month previously she had had a vaginal hysterectomy in another city. Approximately three weeks later she became suddenly and acutely ill with "locked bowels, fever, swollen abdomen, and lower abdominal pain". The following day she developed vaginal urinary leakage. She was treated with antibiotics and nasogastric suction and was eventually referred to this institution.

When initially examined the patient had moderately acute left CVA tenderness and left kidney tenderness. There was tenderness at the vaginal apex to the left side, with urinary leakage. IVP's done prior to admission suggested mild hydronephrosis and hydroureter on the left. Cystoscopic examination revealed a normal bladder; the left ureter obstructed a catheter at 2½ to 3 cm and the contrast medium refluxed about the catheter (Fig. 4). The left ureter was noted to be obstructed just above the left posterior lateral margin of the bladder, at the point where the left round ligament was drawn down into a fibrous mass. Left ureteroneocystostomy was carried out, utilizing a tunnel technic. Postoperatively the patient had no further urinary leakage, but she had recurrent urinary tract infections, variably cultured as Proteus and Aerobacter in 1969, and *E. coli* in the fall of 1970. Final culture in December 1970 revealed no growth. IVP's revealed normal functioning kidney bilaterally without any evidence of obstruction (Fig. 5).

Case 8: A 24-year-old patient was initially seen October 20, 1969. On September 30 she had had an abdominal hysterectomy in another city for endometriosis. On the twelfth postoperative day urine began leaking through the vagina; leakage persisted despite an indwelling urethral catheter. When initially seen the patient was weak and cachectic. An *E. coli* infection was treated. Cystoscopic examination revealed a 2-cm defect in the floor of the bladder just proximal to the interureteric ridge and adjacent to the left cornu of the trigone, with irregular ragged edges and chromic catgut suture material seen on the margin.

Fig. 5. Case 7: One year postoperative; normal pyelograms bilaterally.

Fig. 6. Case 9: Retrograde pyelogram showing obstructed left ureter at 5- to 6-cm level.

A finger in the vagina could be visualized through the fistulous tract. Patient was given supportive therapy and readmitted to the hospital November 14, 1969, whereupon she underwent a transvesical repair of vesicovaginal fistula. Postoperatively she was dry. She was treated for an *E. coli* and Aerobacter urinary tract infection. She had a good postoperative result.

Case 9: A 47-year-old patient was seen April 28, 1968, several weeks following hysterectomy done elsewhere. Shortly following hysterectomy the patient became febrile and IVP's revealed what was said to have been "normal functioning kidneys bilaterally". Retrograde pyelogram on admission revealed completely obstructed distal left ureter at the 5- to 6-cm level (Fig. 6). Following this a nephrolaminogram revealed a hydronephrotic left kidney with perinephric extravasation of urine in conjunction with an obstruction in the distal left ureter (Fig. 7). Aerobacter aerogenes infection was treated. Patient was explored on May 3, and there was found to be ureteral obstruction just below the level of the pelvic brim with retroperitoneal urinary extravasation. The urinoma was drained. Because of the shortness of the ureter a bladder flap ureteroplasty (Boari) was performed, anastomosing the proximal ureter to the bladder flap. Postoperatively the patient's hospital course was prolonged by generalized weakness, inanition, and persistent drainage from the suprapubic cystostomy sinus, which healed after about three weeks. The patient obtained what appeared to be a good postoperative result, and postoperative pyelograms revealed normal functioning kidney without any further evidence of perinephric extravasation of urine. Urinary tract infection was treated.

The patient returned to work and did well. Followup pyelograms obtained in January 1969 (Fig. 8) were reported to show "considerable increasing dilatation of the left collecting system". She was next seen October 1969 at which time there was considerable increase in hydroureter and hydronephrosis of the left kidney (Fig. 9) and was then readmitted. Operative exploration of the site of the Boari flap revealed fibrosis, scarring and stricture of the distal ureter at point of entrance into the flap, in conjunction with a pseudocyst of paraovarian tissue. A second ureteroneocystostomy was carried out mobilizing the base of the bladder and suturing it to the psoas muscle.

The patient developed a permanent ureterocutaneous fistula which failed to heal. She refused further attempts at surgical repair and requested that left nephrectomy be performed. Following appropriate consultation, a left nephrectomy was carried out. Patient has been followed at regular intervals and is completely asymptomatic. She has a normal functioning right kidney, normal BUN and creatinine, and is free of infection. This is the least satisfactory result in this series.

Fig. 7. Case 9: IVP showing left perinephric extravasation, with obstruction distal left ureter.

Fig. 8. Case 9: IV pyelogram seven months postoperative illustrating dilation left collecting system.

Case 10: During the course of a left colon resection for adenocarcinoma of the left colon, this 66-year-old female had transection of the mid left ureter. It was immediately identified by the operating surgeon, and immediate urologic consultation was obtained. Through the same incision the ureter was catheterized proximally and distally with a #5 F ureteral catheter, and a ureteroureterostomy was performed. The distal end of the splinting catheter was advanced to the bladder, and at the termination of the procedure was extracted from the bladder via a cystoscope, and then taped to an indwelling Foley catheter. A hemovac catheter drained the retroperitoneal tissues at the site of the ureteroureterostomy. The splinting ureteral catheter remained in situ for eight days and was removed after there had been no drainage from the hemovac for five days. Patient was maintained on antibiotics and/or chemotherapeutics and seemed to do well. Follow-up pyelograms revealed left hydroureter and hydronephrosis, seemingly due to an obstructive uropathy in the distal left ureter, without any obstruction at the site of the ureteroureterostomy but with leakage from the anastomotic site (Fig. 10). The left ureter was reintubated cystoscopically and drainage instituted for an additional seven days. Patient's urine grew out Proteus and Klebsiella, which cleared on treatment. Although a moderate hydroureter and hydronephrosis (Fig.

Fig. 10. Case 10: Retrograde pyelogram shows leakage of urine from anastomotic site.

Fig. 9. Case 9: IVP 16 months postoperative illustrating increasing hydronephrosis of left kidney.

Fig. 11. Case 10: IVP shows persistent moderate left hydronephrosis with hydroureter.

11) have persisted secondary to distal ureteral obstruction, possibly secondary to lymphatic dissection, there is no apparent obstruction at the anastomotic site. Patient is asymptomatic, working, and refuses further urologic treatment.

Case 11: A 31-year-old female was seen December 1961, 19 days postpartum, following an uncomplicated six and one-half hour labor, median episiotomy, and low forceps delivery. She had had leakage of urine from the vagina for 10 days. Cystoscopically the patient had a urethrovaginal fistula in the proximal third of the urethra visible both on panendoscopy and on vaginal examination. Bladder revealed a chronic trigonitis. Patient had a transvaginal repair of urethrovaginal fistula eight weeks postpartum with an uneventful recovery.

Summary

Although gynecologic surgery for benign disease is commonly performed, it is not usually regarded as presenting hazard to the patient. A series of cases of various types of urinary fistulae resulting from gynecologic complications with a discussion of causes, signs and symptoms, and methods of treatment is presented. •

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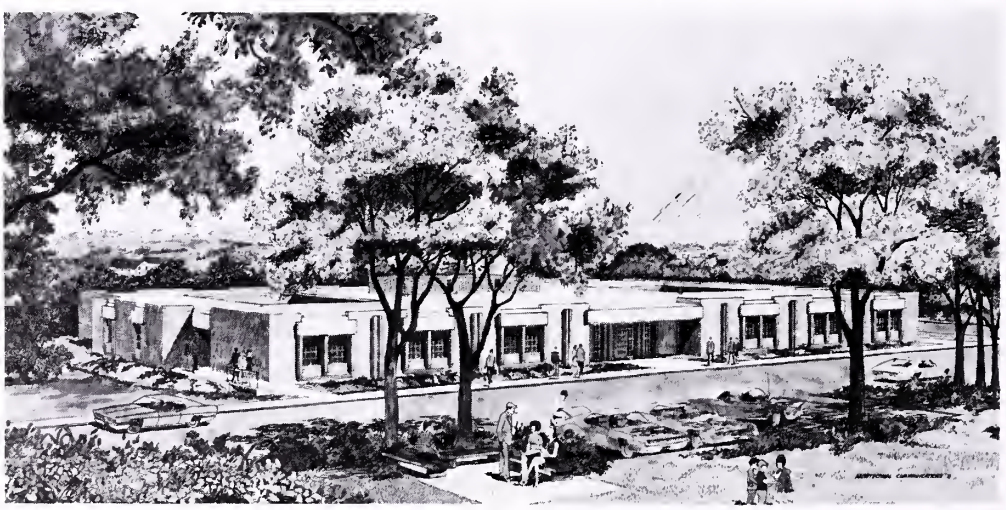

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Cardiac arrhythmia associated with barium enema

Glenn Gibbs, MD, Richard D. Lueker, MD, William A. Baxley, MD, and Donald A. Wolfel, MD, Albuquerque, New Mexico

With the advent of small, portable tape-recording EKG monitoring devices, new attention has focused on the incidence and type of cardiac arrhythmias during various abnormal, unusual, and stressful situations. This study reveals the cardiac arrhythmias present in a group of patients undergoing routine barium enema examination. The results reveal a surprising incidence of arrhythmias and suggest that in some patients with cardiac disease, monitoring should be considered during barium enema examinations.

DISTURBANCES IN CARDIAC RHYTHM may occur with an unexpected frequency in a variety of situations both in people with known cardiovascular disease and in those without such a history. These rhythm abnormalities may be of any type and may range from a transient benign form to a life-threatening arrhythmia. Because of these arrhythmias, various studies have been undertaken in recent years to elucidate any precipitating factors or any high risk populations. The purpose of this study was to help identify incidence, frequency, and type of cardiac rhythm disturbances associated with a common radiologic procedure, the barium enema.

Materials and Methods

A total of 25 patients, four males and 21 females, undergoing routine barium enema examination were studied. The patients ranged in age from 17 to 85 years with a mean of 53 years. The selection of patients was made in a consecutive manner with no reference being made to cardiovascular disease history. Prior to the barium enema examination, each patient was questioned carefully for the presence of cardiovascular disease symptoms, and the patient's chart was reviewed for pertinent data related to heart disease and for data on cardiac medications.

Initially a two-minute ECG strip was obtained prior to barium enema examination to establish a baseline control rhythm for each patient. The second phase of monitoring employed the Holter Avionics electrocardiocorder. This small battery powered ECG tape recorder, worn by the patient, provides continuous recording of the ambulatory ECG for periods up to ten hours. Recordings were obtained throughout the entire period of the barium enema examination on each patient. For arrhythmia analysis, the ECG tapes were processed by means of a Holter electrocardioscanner. Arrhythmias were thus identified and printed out on standard ECG tape for detailed study.

Results

Of the 25 patients studied, 13 (52 per cent) were noted to have had at least one episode of arrhythmia during the examination (Table 1). Four of the 13 had premature atrial contractions (PAC's) while nine of 13 had ventricular premature systoles (PVC's). Sinus arrhythmia was found to occur in four of 13, while one patient each experienced sinus bradycardia and atrial parasystole. Multiple arrhythmias consisting of premature atrial contractions and ventricular premature beats were observed in three of 13 patients.

TABLE 1
INCIDENCE AND TYPE OF CARDIAC ARRHYTHMIAS NOTED IN THE 25 PATIENTS DURING BARIUM ENEMA.

Arrhythmia	Number of Patients	Per cent
Any arrhythmia	13	52
Premature atrial contractions	4	16
Premature ventricular contractions	9	36
Sinus arrhythmia	4	16
Sinus bradycardia	1	4
Atrial parasystole	1	4
Multiple forms of arrhythmia	3	12

Of the group of four patients with premature atrial contractions, one had less than five PAC's/min, two had between five and ten PAC's/min, and one patient had in excess of ten PAC's/min. In those patients with PAC's, none had a history of previous cardiovascular disease nor were any taking medications of significance at the time of examination. Previous ECG's were available on two of four patients and were normal.

Of the group of nine patients with premature ventricular contractions, five had less than five PVC's/min; three patients had between five and ten PVC's/min, and one had more than ten PVC's/min. Of this group, two had a history of hypertension, and two gave a history of cardiovascular disease. Previous ECG tracings were available for six patients and were read as within normal limits.

Four patients had sinus arrhythmias during the barium enema examination. None gave a history of previous cardiovascular disease, nor were they taking any form of medication. Old ECG's were available in three patients; two were normal, and one patient showed a mild sinus bradycardia.

Sinus bradycardia was seen in one patient without known cardiovascular or hypertensive disease. The heart rate observed during the examination was 48/min, a decrease from 75/min at rest.

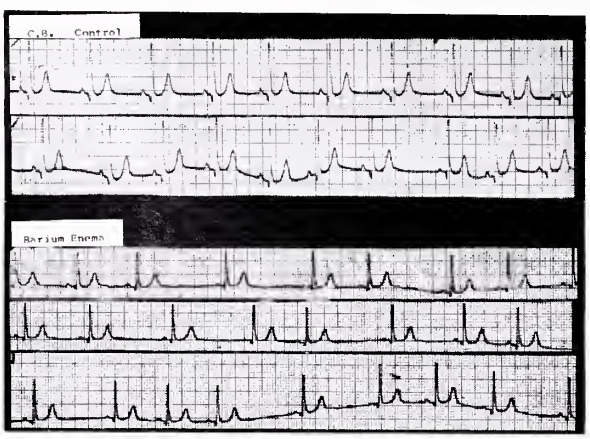

Fig. 1. Representative control ECG during barium enema showing the appearance of premature atrial contractions.

CASE HISTORIES

A 53-year-old female had no known cardiac disease. The resting ECG was normal and the rhythm strip immediately before barium enema showed no arrhythmia. However, during barium enema examination, PAC's were observed at a frequency of 17/min, and sinus arrhythmia was also noted (Fig. 1).

A 64-year-old female without known cardiac disease had a normal ECG, and rhythm strip before barium enema showed no arrhythmia. During barium enema, PVC's were noted at a frequency of 14/min (Fig. 2).

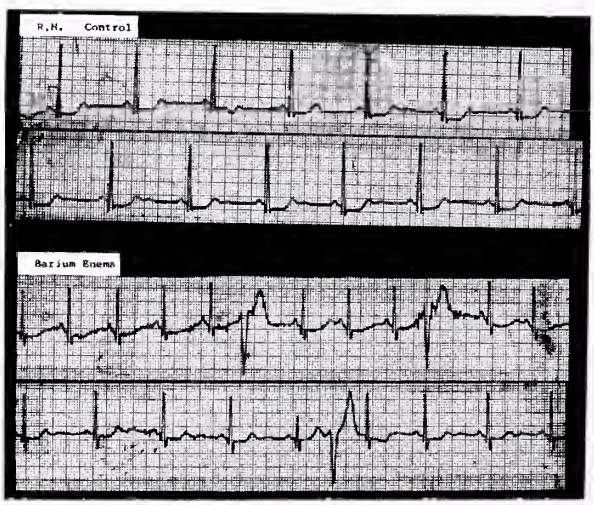

Fig. 2. Representative ECG before and during barium enema showing the appearance of premature ventricular contractions.

A 78-year-old female had no known cardiovascular disease nor was she taking any cardiovascular medication. A previous ECG was normal. During barium enema, however, she developed PVC's, PAC's, sinus arrhythmia, and atrial parasystole (Fig. 3). The patient expired two weeks after the recording was taken. At autopsy, it was found that the patient had generalized fungus infection with Nocardia and also had polymyositis. Cardiovascular abnormalities included minimal atherosclerosis, serous fat degeneration of the heart, and fibrinous pericarditis.

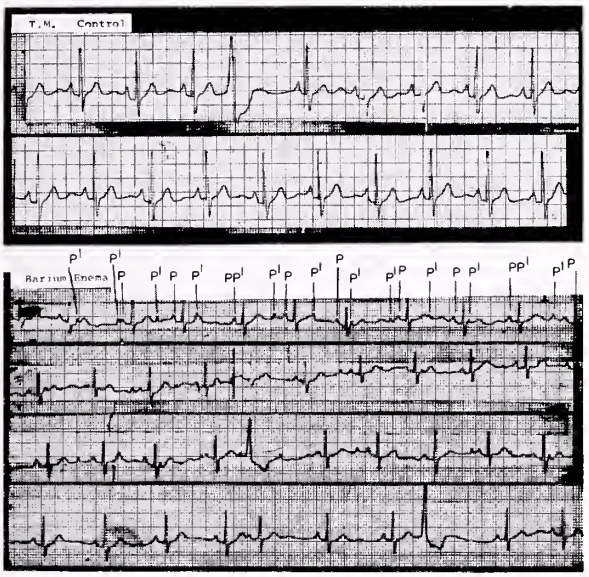

Fig. 3. Representative rhythm strips before and during barium enema. Atrial parasystole appeared with the barium enema, and the P and P' as marked revealed the two independent atrial pacemaking foci.

Discussion

The findings of this study suggest that asymptomatic arrhythmias are common in patients undergoing a routine barium enema. Fifty-two per cent of the patients studied manifested at least one type of arrhythmia. Of the 25 patients studied, 16 per cent had PAC's, 36 per cent had PVC's, 16 per cent had sinus arrhythmia, four per cent had sinus bradycardia, and four per cent had atrial dissociation; 12 per cent of the patients had multiple arrhythmias during the examination. These findings are similar to those of Eastwood,[1] who found ECG changes in 46 per cent of a series of patients monitored during barium enema; the changes consisted of ST-T abnormalities and ventricular conduction defects in addition to arrhythmias.

Whereas 52 per cent of the patients studied experienced an arrhythmia, only eight per cent gave a history of previous underlying cardiovascular disease or hypertension; therefore one must inquire into other factors that might predispose to rhythm disturbances. Among the list of known contributing factors applicable to this study, one finds anxiety, disturbances in ventilation, and abdominal visceral manipulation and/or distention.

The association of anxiety with cardiac arrhythmias has been well studied. A variety of rhythm disturbances have been produced by psychologically stressful situations.[2-5] The implications of these findings are important in that barium enema examination may be psychologically stressful in some patients.

Arrhythmias have been observed with considerable frequency in patients undergoing anesthesia, during surgery as well as during tracheal suction or assisted ventilation.[6-9]

Procedures involving the abdominal viscera have also been implicated in the production of cardiac arrhythmias. A case report of cardiac arrest occurring in a patient without known cardiovascular disease while undergoing gastroscopy is reported by Katz.[10] The effect of abdominal visceral distention on coronary blood flow was explored by Gilbert, LeRoy, and Fenn[11] who found a 15 to 35 per cent reduction in coronary blood flow when the stomachs of dogs were distended. It was their hypothesis that this reflex is mediated through the vagus nerve since it is easily abolished by the administration of Atropine. Another paper by Eggers and Baker[12] reported a case of ventricular tachycardia during cystometrogram examination, presumably representing sympathetic reflex mechanism. This arrhythmia occurred in a patient without known cardiac disease and

could be produced or alleviated by altering bladder pressure. Yamaguchi and co-workers[13] also found arrhythmias both in animals and man under similar clinical situations.

It has been widely held that patients with myocardial infarction are unusually susceptible to the development of arrhythmias during rectal examination. However, this was not substantiated by the study of Earnest and Fletcher[14] who found that a careful rectal examination performed within 24 hours of infarct was not arrhythmogenic. In these patients studied, the arrhythmias produced were transient and asymptomatic, and their ultimate clinical significance will require further study. However, in patients with a history of severe or prolonged arrhythmias, it might be important to consider monitoring such patients during barium enema or other endoscopic procedures. •

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Drowning and near-drowning

Physiologic and therapeutic considerations

Robert D. Knudson, MD, Taos, New Mexico

Knowledge of the altered physiology in submersion gives the physician an opportunity to treat the victim aggressively and intelligently.

DROWNING IS THE fourth most common cause of accidental death in the United States. Seven thousand deaths are reported each year. A knowledge of the altered physiologic processes in submersion is essential to proper treatment. This paper reviews the pathophysiology and treatment of drowning and near-drowning victims.

Pathophysiology

Hypoxia is the first of a series of events which beset the struggling, fatigued, panicky, and possibly traumatized victim. A high CO_2 tension and acidosis build upon his declining pO_2, with rapid cerebral hypoxia ensuing upon submersion.

A not so well understood, but nonetheless prevalent mechanism, is shallow-water blackout. This is a phenomenon of breath-holding in divers, who hyperventilate to a low pCO_2 prior to entering the water. Exertion during the dive lowers pO_2 to levels producing unconsciousness. The slowly rising pCO_2 levels are not high enough to stimulate the respiratory center, and rapidly declining pO_2 levels give little or no warning of impending cerebral hypoxia.

Trained divers, such as instructors in submarine escape technic and sponge and pearl divers, who descend to 90 feet or more, have on occasion attained alveolar pO_2 values of 25-30 mm Hg during the last ten feet of ascent. This of course may lead to unconsciousness, but these divers are "protected" by increased CO_2 tolerance and training.

Pulmonary edema occurs in more than 75 per cent of both fresh and salt water drownings, with 500-1,500 cc of edema fluid to be anticipated in adults. The mechanism appears to be asphyxia leading to anoxic alveolar epithelium and massive plasma transudate. Fluid aspirated into the lungs possesses an osmotic and irritant effect further compounding the problem.

Most drowning victims have aspirate in the lungs consisting of a variety of aquatic vegetation, diatomes or dinoflagelates, vomitus, and water. Massive hemodilution, hemoconcentration, and hemolysis, which would be expected from osmotic effects of aspirated fluids, are present in experimental animals, but not in humans.

Ventricular fibrillation has been reported only once in humans, despite frequent occurrence in submerged dogs. Anoxia, acidosis, and local myocardial changes occur with no difference in therapeutic significance than in other clinical situations. Atrial fibrillation, QT changes, and other arrhythmias seen commonly in near-drowning victims are related to myocardial anoxia, are transient, and respond well to increased oxygenation.

Hemoglobinuria has been reported but is transient. Oliguria with or without the hemoglobinuria is common, and spontaneous resolution without severe renal damage is to be expected.

Emergency Treatment

At the scene, mouth-to-mouth resuscitation should be instituted immediately. Several lung inflations are needs to prevent possible irreversible changes. If a carotid pulse is not palpable, closed-chest massage should be instituted. That apnea and circulatory arrest have existed for an apparently

FOR CORRECTION SEE p. 47 # 10

prolonged time should not deter resuscitative measures, particularly in the young. Complete recovery is reported of a five-year-old child submerged for 22 minutes, who required two hours of resuscitation and closed chest massage prior to spontaneous onset of respiratory and cardiac function. Apparent duration of submersion is an unreliable index as to the physiologic state of the victim.

Hospital Treatment

IPPB with 100 per cent O_2 should be started immediately and endotracheal intubation performed if the victim is able to tolerate a tube. Intubation will not only assist in ventilatory control, but also will be helpful in clearing pulmonary edema fluid, aspirated vomitus, and particulate matter. Even though prolonged O_2 administration may act as a respiratory tract irritant and aggravate pulmonary edema, treatment should emphasize correction of the hypoxic state. Ventilation of the patient should be regulated to produce moderate respiratory alkalosis, and arterial pO_2 in the range of 60-90 mm Hg.

Sodium bicarbonate, 1-2 ampules, should be given promptly, then one ampule (44.6 mEq) for each -5 base excess. This adjunctive measure is felt to be vital in the initial stages of therapy. Massive steroid dosages given intravenously reduce pulmonary inflammation, assist in the resolution of pulmonary edema, and help to prevent cerebral edema. Antibiotics may be useful in preventing secondary pulmonary alterations, and should be utilized as necessary.

Plasma is the fluid of choice in both fresh and salt water drownings and should be started immediately; replacement of 500-1,500 cc is generally required when significant pulmonary edema exists. Central venous pressure monitoring will assist in guiding intravenous therapy. Circulatory and renal function usually improve within minutes of appropriate treatment.

Gastric decompression with nasogastric suction will prevent aspiration from recurrent vomiting or gastroesophageal reflux. This should be accomplished after the above measures have been instituted.

Cerebral edema resulting from hypoxia is treated by oxygenation. Osmotic agents, steroids, and hypothermia may be useful adjuncts, but prime therapy, acute and chronic, is the sufficient oxygen perfusion of the brain.

Late Therapy

Sudden reversal of the clinical course during apparent satisfactory recovery is very common, usually due to continued anoxia (depressed respiratory center, cerebral edema, ischemic myocardium). Most patients who survive the initial 24 hours will recover and if pneumonia does not occur, three to five days will see full recovery. Prolonged hospitalization is usually due to anoxic brain damage.

Supportive psychotherapy may be needed to help the survivor cope with various phobias and anxieties associated with his experience. A mild to moderate depression is common three to six weeks following the incident.

Summary

Near-drowning, whether from submersion in fresh water or salt water, presents the same clinical picture. Hypoxia, pulmonary edema, acidosis, and aspiration are the main considerations in treatment. Therapy should begin at the time of rescue and be pursued vigorously.

Fundamentals of therapy are (1) immediate mouth-to-mouth resuscitation, (2) closed-chest massage if pulse is absent, (3) endotracheal tube if possible, (4) IPPB with 100 per cent O_2, (5) pulmonary toilet (consider tracheostomy), (6) HCO_3 1-2 ampules immediately, (7) plasma and intravenous fluids, (8) massive steroid therapy, (9) gastric decompression, (10) antibiotics, (11) cardiac defibrillation, and (12) reassessment of oxygenation. •

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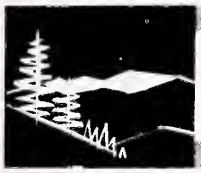

COLORADO

Dr. Eisele Receives Honorary Membership

Dr. C. Wesley Eisele, professor of medicine and of preventive medicine and comprehensive health care at the University of Colorado School of Medicine, was awarded an honorary membership in the American Hospital Association at its annual banquet August 9 in Chicago. Dr. Eisele, one of three national leaders who received honorary memberships, is the second Coloradan to be so honored. Dr. Ward Darley, former dean of the School and president of the University, was awarded an honorary membership in 1957.

Dr. Eisele is nationally noted for the Hospital Medical Staff Conferences he has conducted annually for the past eight years at Estes Park. A volume based on the proceedings of the Estes Park conferences has resulted in a widely circulated book, *The Medical Staff in the Modern Hospital,* which was edited by Dr. Eisele and is the first work of its kind in the field.

NEW MEXICO

Dr. Brogdon Appointed to VA Advisory Group

Dr. Byron Gil Brogdon, chairman of the Department of Radiology at the University of New Mexico School of Medicine, has been appointed to the special medical advisory group of the national Veterans Administration. In this capacity, Dr. Brogdon will consult with the VA's national Department of Medicine and Surgery in its efforts to provide quality care to patients and to work with physicians in the private sector in the interest of all citizens. The Veterans Administration has come to rely ever-increasingly on the services of the advisory group.

REMEMBER: Papers for the Cochems Competition on "Thrombophlebitis and Basic Vascular Problems" are due on or before November 15, 1972. Send entries to Dean, University of Colorado School of Medicine, 4200 East Ninth Avenue, Denver, Colorado 80220.

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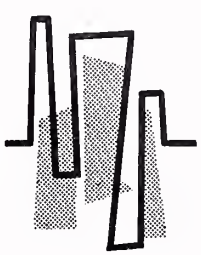
OBITUARIES

Colorado

George Arnold Unfug, MD, one of Colorado Medical Society's most colorful members, died in Pueblo on July 31, 1972 after a long illness. Here was a man who by his hard work, tenacity, jovial personality, and wit attained highest honors in his county, state, and national medical societies and was a leader in every endeavor he engaged in.

Doctor Unfug was born in Walsenburg, Colorado on November 2, 1900. He received his primary education in the Walsenburg public schools and his secondary education at East High in Denver. He attended the University of Colorado where he received his MD degree in 1926, after which he took a rotating internship at Saint Louis City Hospital. While interning he became engaged to Mary Josephine Christian; they were married in Paris, Missouri in January 1928. She preceded him in death a few years ago.

Doctor Unfug began general practice in Pueblo, Colorado in 1927. In 1931 he decided to specialize in radiology. He then served a preceptorship with Doctors Stephenson and Allen in Denver from 1931 to 1932. He had been very active in the Pueblo Medical Society, serving as its secretary before coming to Denver. When he returned to Pueblo, he again became active and was elected president of that Society in 1942. This led to his becoming president of the Colorado Medical Society in 1945-46 and Delegate to the AMA from Colorado 1947-1955. He was also a member of the Radiologic Society of North America, the Rocky Mountain Radiologic Society, serving as its president in 1958-59, and a Fellow of the American College of Radiology.



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Doctor Unfug was appointed to the Colorado State Board of Medical Examiners in 1940 and served as its president in 1946-47. He retired in 1966 but was re-appointed to a six-year term and remained on the Board until May 1971.

In 1946 he received the University of Colorado Medal as a Distinguished Alumnus and in 1956 the Colorado Medical Society's highest award, the Certificate of Service.

Doctor Unfug was also active in local and national politics. He served as Republican County Chairman from 1938 to 1941 and was a Delegate to the Republican National Conventions of 1940 and 1952.

Other clubs and organizations of which he was a member were the Presbyterian Church, the Pueblo Country Club, B.P.O.E. #70, Chi Psi Fraternity, and Phi Rho Sigma Medical Fraternity.

Edward E. Taylor, MD, died on April 11, 1972. Born on May 21, 1892 in Pueblo, the native Coloradan received his primary and secondary education in his home town and attended the University of Colorado where he received his MD degree in 1919. His internship was spent at Denver General Hospital from 1919 to 1920.

Doctor Taylor practiced medicine in Denver for 52 years. For 40 years of that time he was medical director for the Woodman of the World Insurance Company. Retiring from practice in 1969, Doctor Taylor received the Fifty-Year Award from the Colorado Medical Society in 1970. His professional affiliations included memberships in Denver Medical Society, Colorado Medical Society, and International College of Surgeons.

Utah

John O. Evans, MD, former Salt Lake City physician and surgeon, died in Stockton, California on July 4, 1972, at the age of 94. He had been a member of the Salt Lake County Medical Society for 60 years.

A native of Steel City, Nebraska, Doctor Evans was born June 22, 1878, and was married to the former Jessica Bernard, who passed away a number of years ago. Graduating from Creighton Medical College, Omaha, Nebraska in 1905, Doctor Evans later completed his internship at Holy Cross Hospital in Salt Lake City. He had been a member of the medical staff of Holy Cross Hospital from that time until his retirement from medical practice in 1968.

A veteran of World War I, Doctor Evans served as a Captain overseas for nearly three years. He was a member of the Methodist Church and had been affiliated with Argenta Lodge #3, F&AM.

Surviving the doctor are two daughters and two sisters.

Edwin V. Long, MD, retired Salt Lake City physician and surgeon, died June 22, 1972, at the age of 79. Born January 27, 1893, in Woodville, Virginia, Dr. Long was the son of John Macon and Alice Calvin Varner Long. He married Jessie Crawford on December 12, 1921, in Price; she died in 1969.

Doctor Long attended Richmond College and received his MD degree in 1917 from the Medical College of Virginia, both in Richmond. He interned at Southern Pacific Hospital in San Francisco and served a residency at the San Francisco General Hospital.

A former surgeon for Utah Fuel Company in Sunnyside, Utah, Doctor Long was also surgeon for the Denver and Rio Grande Western Railroad and for the Western Pacific Railroad. A past member of the Carbon County Medical Society, Doctor Long had served as that Society's president and also as its secretary-treasurer. He moved to Salt Lake City in 1950, at which time he became a member of the Salt Lake County Medical Society and a staff member of the St. Mark's and Holy Cross Hospitals. He was recently honored by the Utah State and American Medical Associations for his 50 years of service to the practice of medicine.

Doctor Long had served as president of the Carbon Country Club, and was a member of the Elks and Masonic Lodges. He was also a member of the Ambassador Club, Damascus Lodge No. 10, and the Methodist Church.

The doctor is survived by one son, Dr. Robert E. Long of Salt Lake City, and two grandchildren.

Edward S. McQuarrie, MD, retired Beaver County physician, died July 31, 1972 at the age of 73. The son of John G. and Maggie Seegmiller McQuarrie, Doctor McQuarrie was born August 10, 1898, in St. George. He married Ina Gardner on November 28, 1928 in the Salt Lake L.D.S. Temple. Doctor McQuarrie attended Brigham Young University and then taught school in Orangeville and Castle Dale, Emery County. He later served for two years as principal of the school in Emery.

Receiving his pre-medical education from the University of Utah, Doctor McQuarrie was awarded his MD degree in 1928 from George Washington University School of Medicine. He served his internship the following year at Letterman General Hospital in San Francisco. Returning to Utah in 1930, Doctor McQuarrie established his practice in Beaver, where he served as the community's only physician until his retirement in 1965. Doctor McQuarrie was a member of the Southern Utah Medical Society as well as the Utah State and American Medical Associations and was also active in the L.D.S. Church.

Survivors include the doctor's widow, three daughters, and ten grandchildren. Also surviving are three sisters and four brothers, including Dr. I. Bruce McQuarrie of Ogden and Dr. Harlow B. McQuarrie of Ephraim.

Hampton H. Trayner, MD, Davis County Health Director, died July 31, 1972. He was 63. Born July 20, 1909, in Perry, Oregon, he was the son of Jacob Hampton and Lottie Parkinson Hill Trayner. He married Vera Eardley on August 26, 1935 in New York City. The marriage was later solemnized in the Salt Lake L.D.S. Temple.

A 1942 graduate of the University of Chicago School of Medicine, Doctor Trayner interned at the Vancouver General Hospital in Vancouver, B.C., Canada. He served residencies at Vancouver General Hospital and the University of Oregon Medical School and in 1953 received a master's degree in public health from Harvard University.

Doctor Trayner was a Captain in the U.S. Army Medical Corps, where he served as public health officer in Germany until 1946. He then practiced private medicine in western Montana until 1950, at which time he was appointed public health officer of Whitman County, Colfax, Washington. In 1953 he was named health officer for Spokane and served in this capacity until 1967. Since that time he had served as Davis County Health Director and was in charge of county health activities.

He was a member of the Davis County, Utah State, and American Medical Associations; the Utah Public Health and American Public Health Associations; and a charter member of the American Association of Public Health Physicians. He was also a member of the Utah State Historical Society and a charter member of Utah Westerners and Spokane Westerners, other historical organizations. Doctor Trayner was serving as a High Priest in the L.D.S. Church at the time of his death.

Surviving the doctor are his widow and three sisters.

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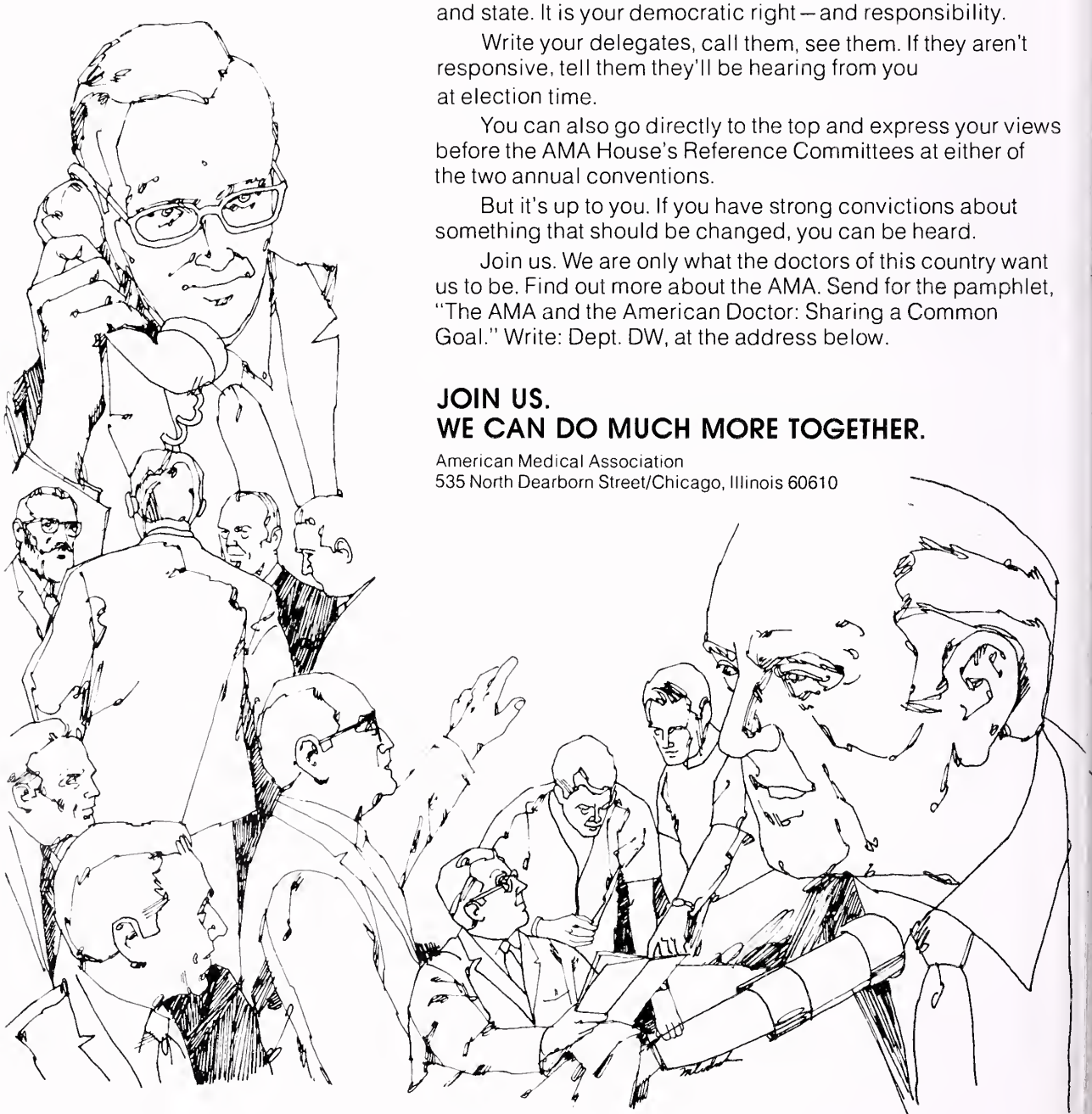

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October 1972

Volume 69 • Number 10

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Warnings: Age, weight, dosage, duration of therapy, existence of concomitant diseases, and concurrent potent chemotherapy affect incidence of toxic reactions. Carefully instruct and observe the individual patient, especially the aging (forty years and over) who have increased susceptibility to the toxicity of the drug. Use lowest effective dosage. Weigh initially unpredictable benefits against potential risk of severe, even fatal, reactions. The disease condition itself is unaltered by the drug. Use with caution in first trimester of pregnancy and in nursing mothers. Drug may appear in cord blood and breast milk. Serious, even fatal, blood dyscrasias, including aplastic anemia, may occur suddenly despite regular hemograms, and may become manifest days or weeks after cessation of drug. Any significant change in total white count, relative decrease in granulocytes, appearance of immature forms, or fall in hematocrit should signal immediate cessation of therapy and complete hematologic investigation. Unexplained bleeding involving CNS, adrenals, and G.I. tract has occurred. The drug may potentiate action of insulin, sulfonylurea, and sulfonamide-type agents. Carefully observe patients taking these agents. Nontoxic and toxic goiters and myxedema have been reported (the drug reduces iodine uptake by the thyroid). Blurred vision can be a significant toxic symptom worthy of a complete ophthalmological examination. Swelling of ankles or face in patients under sixty may be prevented by reducing dosage. If edema occurs in patients over sixty, discontinue drug.

Precautions: The following should be accomplished at regular intervals: Careful detailed history for disease being treated and detection of earliest signs of adverse reactions; complete physical examination including check of patient's weight; complete weekly (especially for the aging) or an every two week blood check; pertinent laboratory studies. Caution patients about participating in activity requiring alertness and coordination, as driving a car, etc. Cases of leukemia have been reported in patients with a history of short- and long-term therapy. The majority of these patients were over forty. Remember that arthritic-type pains can be the presenting symptom of leukemia.

Adverse Reactions: This is a potent drug; its misuse can lead to serious results. Review detailed information before beginning therapy. Ulcerative esophagitis, acute and reactivated gastric and duodenal ulcer with perforation and hemorrhage, ulceration and perforation of large bowel, occult G.I. bleeding with anemia, gastritis, epigastric pain, hematemesis, dyspepsia, nausea, vomiting and diarrhea, abdominal distention, agranulocytosis, aplastic anemia, hemolytic anemia, anemia due to blood loss including occult G.I. bleeding, thrombocytopenia, pancytopenia, leukemia, leukopenia, bone marrow depression, sodium and chloride retention, water retention and edema, plasma dilution, respiratory alkalosis, metabolic acidosis, fatal and nonfatal hepatitis (cholestasis may or may not be prominent), petechiae, purpura without thrombocytopenia, toxic pruritus, erythema nodosum, erythema multiforme, Stevens-Johnson syndrome, Lyell's syndrome (toxic necrotizing epidermolysis), exfoliative dermatitis, serum sickness, hypersensitivity angiitis (polyarteritis), anaphylactic shock, urticaria, arthralgia, fever, rashes (all allergic reactions require prompt and permanent withdrawal of the drug), proteinuria, hematuria, oliguria, anuria, renal failure with azotemia, glomerulonephritis, acute tubular necrosis, nephrotic syndrome, bilateral renal cortical necrosis, renal stones, ureteral obstruction with uric acid crystals due to uricosuric action of drug, impaired renal function, cardiac decompensation, hypertension, pericarditis, diffuse interstitial myocarditis with muscle necrosis, perivascular granulomata, aggravation of temporal arteritis in patients with polymyalgia rheumatica, optic neuritis, blurred vision, retinal hemorrhage, toxic amblyopia, retinal detachment, hearing loss, hyperglycemia, thyroid hyperplasia, toxic goiter, association of hyperthyroidism and hypothyroidism (causal relationship not established), agitation, confusional states, lethargy; CNS reactions associated with overdosage, including convulsions, euphoria, psychosis, depression, headaches, hallucinations, giddiness, vertigo, coma, hyperventilation, insomnia; ulcerative stomatitis, salivary gland enlargement. (B)98-146-070-G

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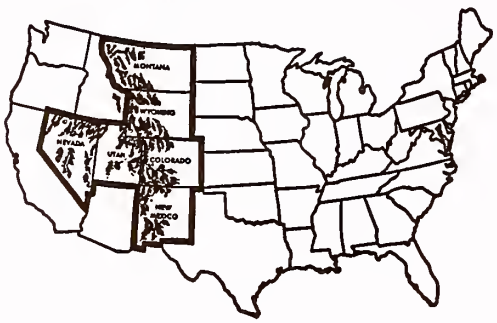

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Douglas W. Macomber, MD, retires after 41 years as this *Journal's* Chief Scientific Editor. See our feature editorial on the next page.

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A Giant Retires

More than 41 years ago, February 1, 1931 to be exact, a very young physician began an editorial career with this *Journal* as Assistant Scientific Editor. Three months later he was appointed Scientific Editor. It was then a small publication, entitled *Colorado Medicine (Incorporating a Wyoming Section).*

Now, as this issue, his 498th, of the *Rocky Mountain Medical Journal* goes to press, that same physician, Douglas Wetherill Macomber, MD, retires as Scientific Editor and Chairman of the now six-state Editorial Board. He is the senior among all editors of state and regional medical journals in the United States and is one of the nation's deans of plastic and reconstructive surgery, certainly a giant among medical journalists and, above all, a deeply loved doctor and friend to all who know him.

That "the *Rocky Mountain Medical Journal* stands high among medical publications of this country" has been published, said, and quoted by others for years. Douglas Macomber, now laying down his editorial pen, is the major cause of that true statement.

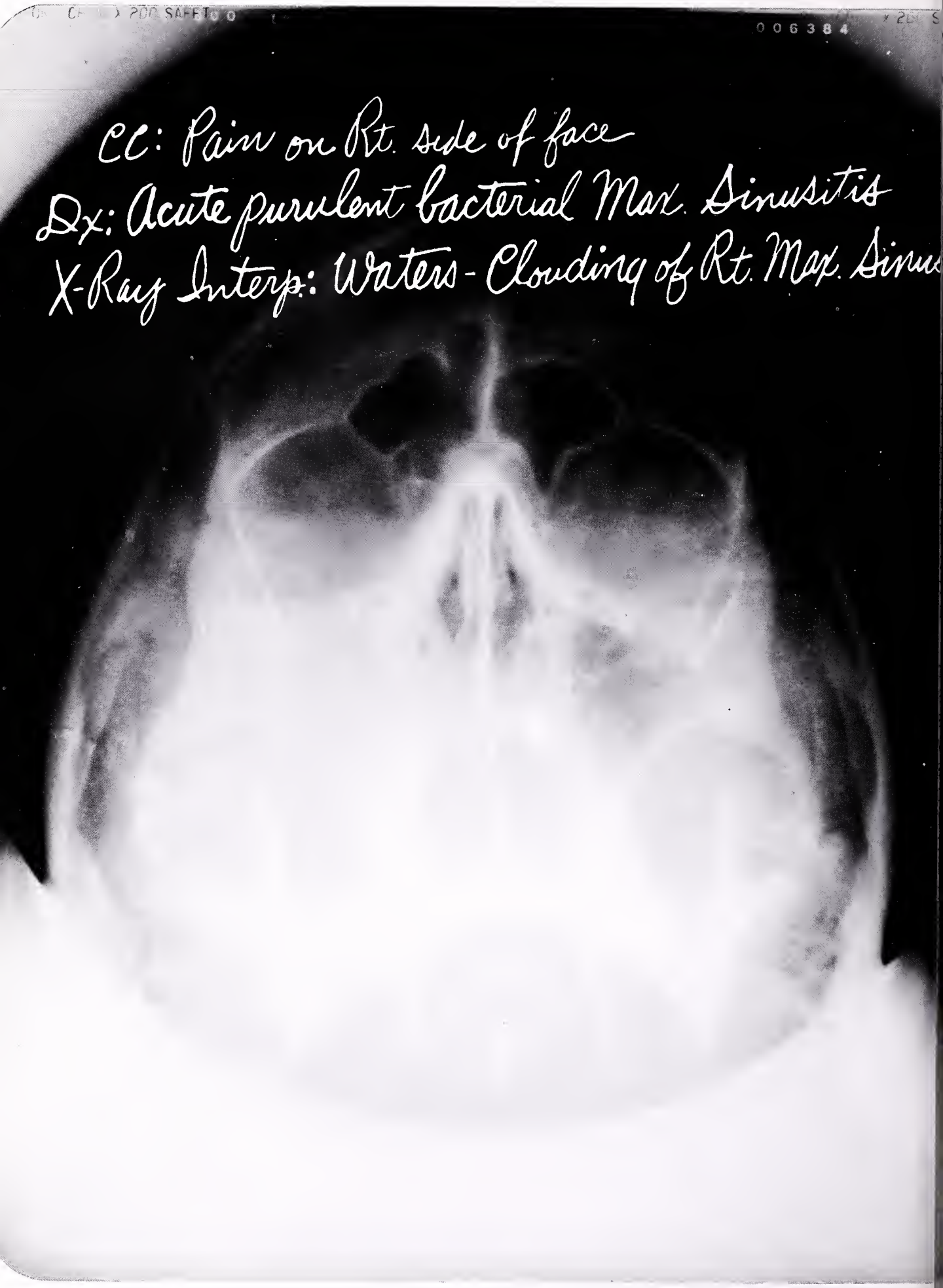
He had retired from his heavy private practice last winter. Last summer he notified the Board of Trustees of the Colorado Medical Society (legal "owner" of the *Journal*) that he wished to close his editorship at this September's annual meeting of the Editorial Board. The Trustees acceded and they also accepted his recommendation that his Assistant Editor for the last nine years, Carl H. McLauthlin, MD, be advanced to the Scientific Editorship. They also elected Dr. Macomber to the newly created position of Scientific Editor Emeritus for life, nominated him for the Colorado Medical Society's prized "Certificate of Service", and presented him with a fine reproduction of the famous Charles M. Russell painting, "Toll Collectors", known to be a Macomber favorite

These and other honors were to have been conferred upon him in person at the Colorado Society's Annual Session beginning September 20, 1972, and he was to have presided at the Editorial Board meeting the morning of September 21. But, most unfortunately, a coronary occlusion intervened, and Dr. Macomber spent much of September under intensive care in Saint Luke's Hospital. As this is written he is making a slow but steady recovery and is back in his Polo Club apartment under the loving care of his wife Martha.

For the record Douglas Macomber was born in Denver, February 17, 1902, the son of Dr. George N. Macomber. He graduated from the University of Colorado School of Medicine in 1926, interned at Denver's Saint Luke's Hospital, and then began general practice. Wanting to specialize in plastic and reconstructive surgery, he would skillfully prepare the scientific sections of our *Journal* for several months in advance and then take off for intensive study under some of the world's great pioneers in plastic surgery. In 1938 he announced limitation to the specialty. During World War II, Dr. Macomber maintained his position as Scientific Editor, though "in abstentia", while serving in the U.S. Army Medical Corps. Many a soldier remembers him for the surgical skill which repaired disfigurements that otherwise might have made return to normal civilian life impossible.

Doug, everyone will miss you—your associates and assistants from the six states participating in our mutual *Journal,* the officers and staff of the Colorado Medical Society, your Denver colleagues including the younger plastic surgeons some of whom you have helped to train and to whom you have now referred all you patients, those thousands of patients you have helped to live better lives, and a great "silent majority" of *Journal* readers. Don't let us miss you *entirely;* take care of yourself, get well fast from that coronary, and come back often with one of your pithy editorials.

—The Editorial Board



X-ray provided by Manhattan Eye, Ear and Throat Hospital

There are many frustrations in treating acute sinusitis. Cleocin manages most of the bacterial ones.

Inadequate drainage, chronic rhinitis, allergy, exposure to temperature extremes, and other factors can delay recovery from acute sinusitis.

It's helpful to have an antibiotic like Cleocin HCl (clindamycin HCl hydrate, Upjohn) that can take care of most of the gram-positive bacterial problems related to the disease.

As one study* of 52 outpatients showed, acute maxillary sinusitis was associated with staphylococci in 50% of the group, with pneumococci in 25%, and with streptococci and various other organisms (chiefly gram-negative) in the remainder. Significantly, one-half of these staphylococcal infections were resistant to both penicillin and tetracycline (all were sensitive to erythromycin and chloramphenicol). Although not a part of this study, many other clinical and bacteriologic reports[1] have shown that such gram-positive bacteria, which most often are associated with acute sinusitis, are usually susceptible to Cleocin.

Can be taken before, with, or after meals

The total absorption of Cleocin is virtually unaffected by the presence of food in the GI tract.[1] Cleocin thus can be administered as prescribed without interfering with the patient's mealtimes.

Useful in patients hypersensitive to penicillin

Cleocin's chemical structure bears no relationship to penicillin or the cephalosporins. Cleocin therefore may be especially useful in patients with acute sinusitis who report a history of hypersensitivity to these antibiotics. Although hypersensitivity reactions have been uncommon with Cleocin, it should be used cautiously in atopic individuals. Cleocin is not recommended in the lincomycin-sensitive patient.

Please see following page for further prescribing information.

Cleocin® HCl 150 mg capsules

clindamycin HCl hydrate, Upjohn

olds, R. C., et al.: Bull. Johns Hopkins Hosp. 114:269, 1964
on file, Medical Research Department, The Upjohn Company

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Side effects: In studies of 1,416 patients involving 92 clinical investigators, side effects were reported in 8.2%.[1] Diarrhea or loose stools were noted in 3% of these cases (one patient with bloody stools). In a few instances, diarrhea lasted several days. A slightly higher incidence of diarrhea or loose stools has been reported by some investigators in subsequent studies.

Toxicity: No irreversible hematologic, renal, dermatologic, or neurologic abnormalities have been reported.[1] Transient leukopenia and eosinophilia have been observed. Elevations of alkaline phosphatase and serum transaminases were observed in a few instances. As with other antibiotics, periodic liver function tests and blood counts should be performed during prolonged therapy.

In acute sinusitis and other upper respiratory infections due to susceptible staphylococci, streptococci, and pneumococci

Cleocin® HCl

clindamycin HCl hydrate, Upjohn

Each preparation contains:	Clindamycin HCl hydrate equivalent to clindamycin base
150 mg Capsules	150 mg
75 mg Capsules	75 mg

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Cleocin HCl (clindomycin HCl hydrate) is indicated in infections of the upper and lower respiratory tract, skin and soft tissue, and, adjunctively, dental infections caused by gram-positive organisms which are susceptible to its action, particularly streptococci, pneumococci and staphylococci. As with all antibiotics, *in vitro* susceptibility studies should be performed.

CONTRAINDICATIONS: Patients previously found to be hypersensitive to this compound or to lincomycin.

WARNINGS: Safety for use in pregnancy not established. Not indicated in the newborn (infants below 30 days of age).

PRECAUTIONS: Prescribe with caution in atopic individuals. Perform periodic liver function tests and blood counts during prolonged therapy. The serum half-life in patients with markedly reduced renal function is approximately twice that in normal patients; hemodialysis and peritoneal dialysis do not effectively remove Cleocin from the blood. Therefore, with severe renal insufficiency, determine serum levels of clindamycin periodically and decrease the dose appropriately. Should overgrowth of nonsusceptible organisms—particularly yeasts—occur, take appropriate clinically indicated measures.

ADVERSE REACTIONS: Generally well tolerated in clinical efficacy studies. Side effects reported in 8.2% of 1,416 patients. Of the total, 6.9% reported gastrointestinal side effects and 1.3% reported other side effects. Diarrheo or loose staols were reported in 3%. *Gastraintestinal:* Symptoms included obdominal pain, nousea, vomiting and diarrheo or loose stools. In a few instances, diarrheo lasted for several days; one case of bloody stools was reported. *Hematopoietic:* Tronsient neutropenia (leukopenia) and eosinophilia have been reported; relationship to therapy is unknown. No irreversible hematologic toxicity has been reported. *Skin and Mucous Membranes:* Skin rash and urticaria have been reported infrequently. *Hypersensitivity Reactions:* A few cases of hypersensitivity reaction have been reported. If hypersensitivity occurs, discontinue drug and have available the usual agents (epinephrine, corticosteroids, antihistamines) for emergency treatment. *Liver:* Although no direct relotionship of Cleocin HCl (clindamycin HCl hydrate) to liver dysfunction has been noted and significance of such chonge is unknown, transient abnormalities in liver function tests (elevations of alkaline phosphatase and serum transaminases) have been observed in a few instances. Also, abnormal liver function test values at the beginning of therapy have returned to normal during therapy.

DOSAGE AND ADMINISTRATION: *Adults:* Mild to moderately severe infections—150 to 300 mg every 6 hours. Severe infections—300 to 450 mg every 6 haurs.

Children: Mild to moderately severe infections—8 to 16 mg/kg/day (4 to 8 mg/lb/day) divided into three or four equal doses. Severe infections—16 to 20 mg/kg/day (8 to 10 mg/lb/day) divided into three or faur equal doses.

Note: With β-hemalytic streptococcal infections, treatment should continue far at least 10 days to diminish the likelihood of subsequent rheumatic fever or glomerulonephritis.

SUPPLIED: *150 mg Capsules*—Bottles of 16's and 100's. *75 mg Capsules*—Bottles of 16's and 100's. *Sensitivity Disks*—2 μg. *Sensitivity Powder*—Vials.

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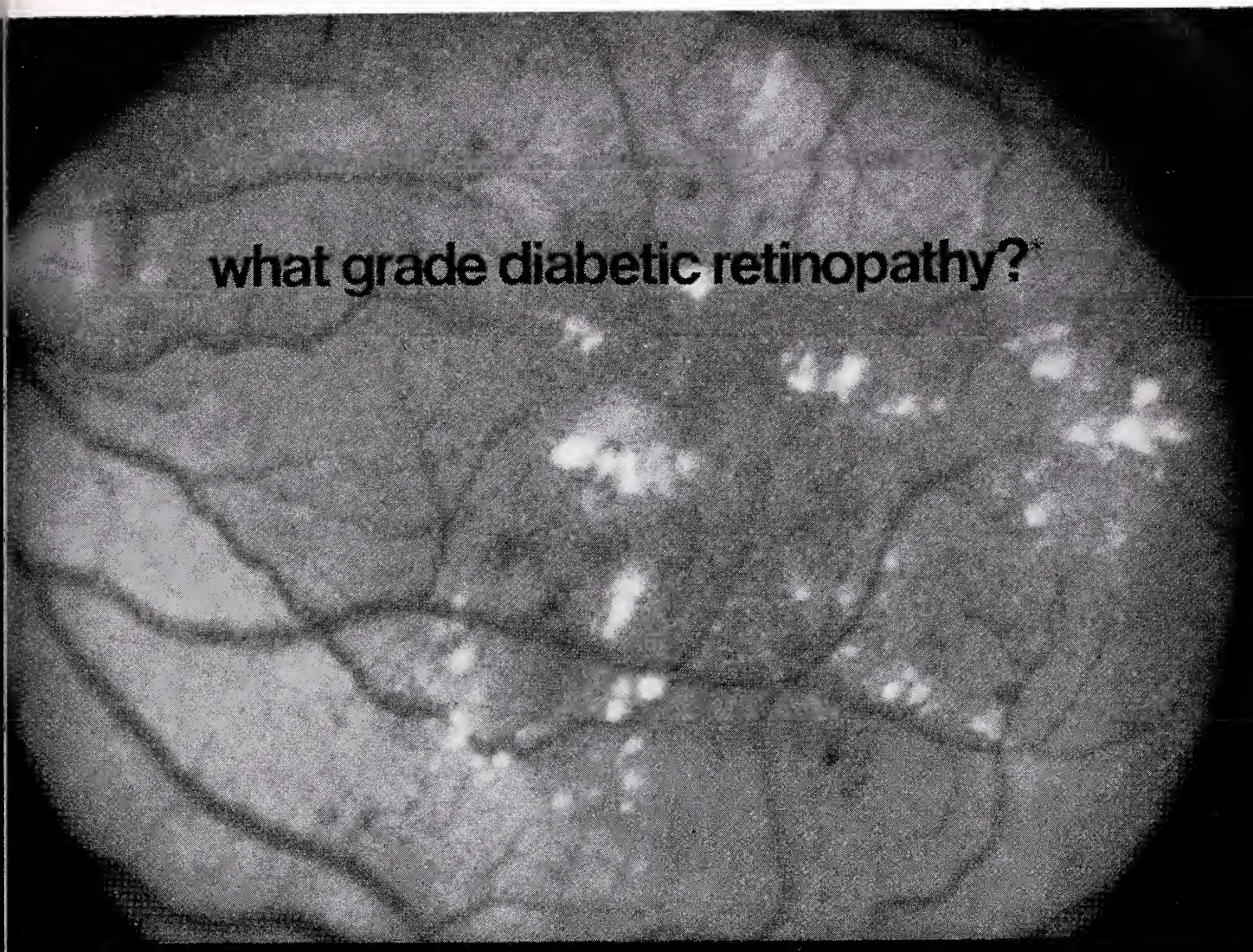

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Contraindications: Pre-existing elevated serum potassium. Hypersensitivity to either component. Continued use in progressive renal or hepatic dysfunction or developing hyperkalemia.

Warnings: Do not use dietary potassium supplements or potassium salts unless hypokalemia develops or dietary potassium intake is markedly impaired. Enteric-coated potassium salts may cause small bowel stenosis with or without ulceration. Hyperkalemia (>5.4 mEq/L) has been reported in 4% of patients under 60 years, in 12% of patients over 60 years, and in less than 8% of patients overall. Rarely, cases have been associated with cardiac irregularities. Accordingly, check serum potassium during therapy, particularly in patients with suspected or confirmed renal insufficiency (e.g., elderly or diabetics). If hyperkalemia develops, substitute a thiazide alone. If spironolactone is used concomitantly with 'Dyazide', check serum potassium frequently—both can cause potassium retention and sometimes hyperkalemia. Two deaths have been reported in patients on such combined therapy (in one, recommended dosage was exceeded; in the other, serum electrolytes were not properly monitored). Observe patients on 'Dyazide' regularly for possible blood dyscrasias, liver damage or other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving Dyrenium (triamterene, SK&F). Rarely, leukopenia, thrombocytopenia, agranulocytosis, and aplastic anemia have been reported with the thiazides. Watch for signs of impending coma in acutely ill cirrhotics. Thiazides are reported to cross the placental barrier and appear in breast milk. This may result in fetal or neonatal hyperbilirubinemia, thrombocytopenia, altered carbohydrate metabolism and possibly other adverse reactions that have occurred in the adult. When used during pregnancy or in women who might bear children, weigh potential benefits against possible hazards to fetus.

Precautions: Do periodic serum electrolyte and BUN determinations. Do periodic hematologic studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in postsympathectomy patients. The following may occur: hyperuricemia and gout, reversible nitrogen retention, decreasing alkali reserve with possible metabolic acidosis, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), digitalis intoxication (in hypokalemia). Use cautiously in surgical patients. Concomitant use with antihypertensive agents may result in an additive hypotensive effect.

Adverse Reactions: Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis; rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting (may indicate electrolyte imbalance), diarrhea, constipation, other gastrointestinal disturbances. Rarely, necrotizing vasculitis, paresthesias, icterus, pancreatitis, and xanthopsia have occurred with thiazides alone.

Supplied: Bottles of 100 capsules.

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IN EDEMA*—IN HYPERTENSION*

To the Editor:

I was amazed to find, in the article "Fat Embolism" which appeared in the *Rocky Mountain Medical Journal,* Volume 69, Number 8 of August 1972, that not one word regarding the retinal signs was mentioned nor was there any record in the two cases quoted of ophthalmoscopy. The author stated in his summary that "since there are at present no consistently reliable objective signs . . ."

This is unfortunate. Ocular signs are important in fat embolism syndrome. Apart from nystagmus and sludging of the blood in the conjunctival vessels, there are characteristic fundal appearances. In the early stage, numerous small white areas are visible, particularly around the macula, which may subsequently coalesce. Retinal hemorrhages do not occur at this stage. In the later stages of the syndrome, retinal hemorrhages may occur with or without papilledema, but by then the diagnosis is well established, or should be. I wish to repeat the importance of the early fundal changes which are characteristic and which should help in making a diagnosis of the fat embolism syndrome.

I. Brian Taylor, MD
Ophthalmologist
Carlsbad, New Mexico

To the Editor:

I wish to thank Dr. Taylor for calling attention to the ophthalmoscopic findings in fat embolism. It is possible that ophthalmoscopic examination might be of help in the early diagnosis of this condition.

The reasons for this article were: 1) to remind readers of the importance of the fat embolism syndrome; 2) to stress the diagnostic criteria which have been most helpful to me and which have been noted prominently in the recent literature (it is stated in the paper that conjunctival petechiae are found in some patients with fat embolism); and 3) to emphasize the diagnostic and therapeutic significance of arterial hypoxemia in fat embolism.

It appears to me that the aims of the paper were satisfactorily accomplished.

Harold C. Habein, Jr., MD
Billings, Montana

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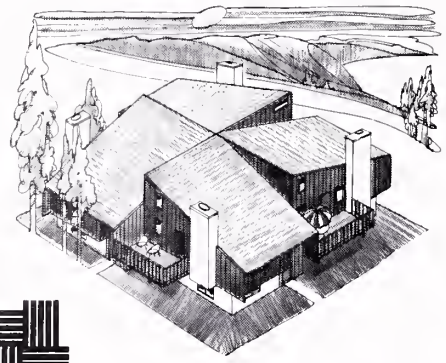

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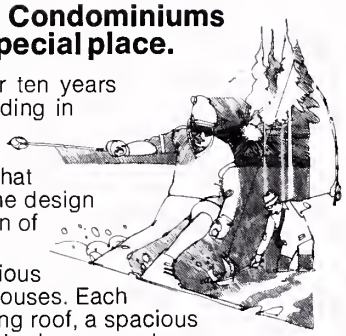

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To the Editor:

The late Dr. Gerald Frumess, a dermatologist in Denver, told me of a treatment for Herpes Zoster that was supposed to have come from Germany. He told me to take ten cc's of blood out of a vein and then inject same into a gluteal muscle (this was to be done each day one time, until the pain was relieved and crusting took place). The patient was also given Decaspray to spray on the involved area about every hour PRN pain. They were also given a Rx for Darvon every four hours PRN pain.

I have used the above on a number of patients and have had excellent results. I have never had to give over four injections (four days) and most of them are comfortable and crusting after two. None of mine had the usual scarring and prolonged pain that one always sees.

I don't know why this treatment works, nor have I ever seen it written up, but it does. Try it on your next herpes and see for yourself. I think that it should work on herpes of the eye—the treatment on that and the results are dismal; and if it worked there as it has for me it should be wonderful.

Freeman D. Fowler, MD
Idaho Springs, Colorado

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MEETINGS

Colorado Heart Association
19TH WESTERN CARDIAC CONFERENCE
Denison Auditorium, University of Colorado Medical Center
November 3-4, 1972

For further information, write: Colorado Heart Association, 1375 Delaware Street, Denver, Colorado 80204; or call (303) 623-3217.

Kidney Foundation of the Rocky Mountain Region
NINTH ANNUAL ROCKY MOUNTAIN SYMPOSIUM ON KIDNEY DISEASE
Brown Palace Hotel, Denver, Colorado
November 10, 1972.

For further information, call (303) 534-7998 or 394-7684.

Nevada Academy of Family Physicians
WINTER SKI MEETING
Sahara Tahoe Hotel, Lake Tahoe, Nevada
January 15-19, 1973

For further information, write: K. W. Malmquist, MD, 850 I Street, Sparks, Nevada 89431.

Western Orthopedic Association
36TH ANNUAL MEETING
Shamrock Hilton Hotel, Houston, Texas
October 29-November 2, 1972

Fee: No charge to members and residents; $50 for non-members, and $35 for military and chapter applicants.

For further information, write: Vi Mathiesen, Executive Secretary, Western Orthopedic Association, 354 21st Street, Oakland, California 94612.

American Society of Clinical Hypnosis
15TH ANNUAL SCIENTIFIC MEETING AND WORKSHOP
Town and Country Hotel, San Diego, California
November 1-5, 1972

For further information, write: F. D. Nowlin, Executive Secretary, American Society of Clinical Hypnosis, 800 Washington Avenue S.E., Minneapolis, Minnesota 55414.

PROVOCATIVE ALLERGY COURSE
Admiral Semmes Hotel, Mobile, Alabama
March 10-11, 1973

Fee: $125, includes one dinner and two luncheons.

For further information, write: Joseph B. Miller, MD, 3 Office Park, Suite 110, Mobile, Alabama 36609.

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Interstate Postgraduate Medical Association of North America

57TH ANNUAL SCIENTIFIC ASSEMBLY
Washington-Hilton Hotel, Washington, D.C.
November 13-16, 1972

Fee: $25 for 26 hours of instruction with credit for AAFP members.

For further information about this meeting, which is designed primarily for family physicians and internists, write: Alton Ochsner, MD, Program Chairman, Interstate Postgraduate Medical Association, P.O. Box 5445, Madison, Wisconsin 53705.

Louisiana Thoracic Society

NINTH ANNUAL POSTGRADUATE COURSE ON PULMONARY FUNCTION IN HEALTH AND DISEASE
New Orleans, Louisiana
December 4-7, 1972

Tuition: $135 for physicians and PhD's, $85 for allied health personnel, and $110 for members of the American Thoracic Society.

FOURTH ANNUAL CEREBRAL FUNCTION SYMPOSIUM: DEMENTIA AND AGEING
San Jeronimo Hotel, San Juan, Puerto Rico
December 15-16, 1972.

For further information, write: Dr. Lynn Smith, Cortical Function Laboratory, Porter Memorial Hospital, 2525 South Downing Street, Denver, Colorado 80210.

SECOND ANNUAL POSTGRADUATE COURSE ON PEDIATRIC PULMONARY FUNCTION AND DISEASE
New Orleans, Louisiana
December 7-9, 1972

Tuition: $75 for physicians and non-physicians. This course is limited to 100 physicians.

Tuition for both courses is $160 for physicians and $140 for ATS members. For further information about these postgraduate courses, write: W. Findley Raymond, Coordinator, 333 St. Charles Avenue, Suite 1504, New Orleans, Louisiana 70130.

Institute for Comprehensive Medicine

SEMINAR ON MANAGEMENT OF SEXUAL AND MARITAL INADEQUACY
Seattle, Washington
December 5-7, 1972

Credit: 20 hours in Category 2 for Physician's Recognition Award of the American Medical Association.

For further information, write: Registrar, Institute for Comprehensive Medicine, 9735 Wilshire Boulevard, Beverly Hills, California 90212.

Mid-Central States Orthopaedic Society

20TH ANNUAL MEETING
Omaha Hilton, Omaha, Nebraska
May 10-12, 1973

For further information, write: Mrs. O. L. Lovan, Executive Secretary, Mid-Central States Orthopaedic Society, 14 Douglas Parkway, Wichita, Kansas 67206.

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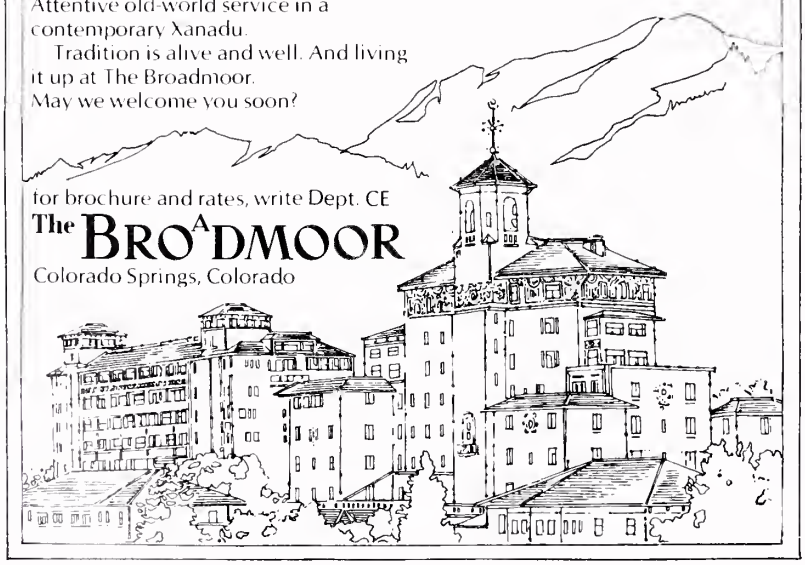

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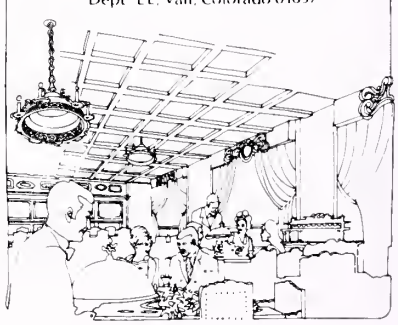

MEDICAL SCHOOL NOTES

University of Nevada School of Medical Sciences

A second year of formal medical education began in late August when the School of Medical Sciences of the University of Nevada, Reno admitted a new class of 46 students. These first-year students joined the charter class of 32 students who began medical studies when the school opened in September 1971. More than 1,000 applications were submitted for the 46 positions available for the second class. Of these 46 selected, 39 are Nevada residents.

According to Dr. George T. Smith, dean of the Medical School, the increase in number of first-year students admitted was possible "because of the generous part-time teaching by Nevada physicians, affiliation with community health facilities and hospitals, support from the federal government, and development of the Division of Educational Support and Communications." In addition, the School received a Special Projects Grant of $355,000 from the National Institutes of Health which provided funding for the increased enrollment.

* * * * *

Southern Nevada Memorial Hospital in Las Vegas becomes the sixth hospital in the state to join with the School of Medical Sciences, University of Nevada, Reno in an affiliation agreement. The agreement, signed by university and hospital officials, provides for cooperative development in the areas of common medical interest, including patient care, teaching, research, and community service.

The hospital will provide space and equipment for educational functions, and staff physicians will supervise any patient contact by medical students. About the affiliation Dr. Sam Crucilla, administrator of the Southern Nevada Memorial Hospital, stated, "We believe that medical care and practice are advanced in those areas where a medical school exists, and we are pleased to serve as a teaching hospital for Nevada's developing medical school."

SEE PAGE 75

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Insights into the ulcer-prone

This man governs an empire—the section of beach that he combs—and he may have much in common wi a business tycoon. Both may be ulcer-prone for simila reasons: both may be difficult to please—both may b demanding, especially of themselves. While there are many types of duodenal ulcer patients, it has been note that, characteristically, these individuals are not easily satisfied.

Measuring oneself against one's own expectations or against those of society may be equally trying—equall anxiety-provoking. It is hard to win when both succes and failure can demand a similar price.

If the ulcer patient were to modify his expectations, h would experience less anxiety—and perhaps fewer ulc attacks. In most cases, this would mean altering the entire constellation of psychological attitudes. Many are unwilling to do so, and many are unable. But while the patient is trying to make his best adjustment to his ulce he often needs therapeutic relief for both the undue anxiety with which he may be plagued and the hypersecretion and hypermotility that cause pain and spasm.

*Palmer, E. D.: *Clinical Gastroenterology*, ed. 2, New York, Hoeb Medical Division, Harper & Row, 1963, p. 206.

Captain of Industry

ibrax can relieve excessive nxiety, thereby helping to reduce ain and spasm

nce duodenal ulcer is frequently associated with cessive anxiety and tension, therapy logically demands lief from both the psychic and the somatic discomfort. brax can help provide this dual relief. Only Librax pro-des in a single capsule both the antianxiety action of brium® (chlordiazepoxide HCl) and the antisecretory/ tispasmodic action of Quarzan® (clidinium Br). With brax, the patient usually tends to react less strongly anxiety-provoking situations, and hypersecretion and permotility are also reduced. A reduction of asso-ated pain and spasm can also be expected, and often cer attacks become fewer and farther between!

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Before prescribing, please consult complete product information, a summary of which follows:

Indications: Symptomatic relief of hypersecretion, hypermotility and anxiety and tension states associated with organic or functional gastrointestinal disorders; and as adjunctive therapy in the management of peptic ulcer, gastritis, duodenitis, irritable bowel syndrome, spastic colitis, and mild ulcerative colitis.

Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

Dosage: Individualize for maximum beneficial effects. Usual maintenance dose is 1 or 2 capsules, 3 or 4 times a day, before meals and at bedtime. Geriatric patients—see Precautions.

How Supplied: Librax® Capsules, each containing 5 mg chlordiazepoxide hydrochloride (Librium®) and 2.5 mg clidinium bromide (Quarzan®)—bottles of 100 and 500.

for the anxiety-linked symptoms of duodenal ulcer

adjunctive

Librax®

Each capsule contains 5 mg chlordiazepoxide HCl and 2.5 mg clidinium Br.

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Roche Laboratories
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Nutley, N.J. 07110

When your diagnosis is seborrheic dermatitis of the scalp, the classic drug for controlling scaling and itching is Selsun®(SELENIUM SULFIDE LOTION)

Proven therapy that only you can give.

Precautions and side effects: Keep out of the eyes, burning or irritation may result. Avoid application to inflamed scalp or open lesions. Occasional sensitization may occur. Rinse well.

Contains: Selenium sulfide, 2½%, w/v in aqueous suspension: also contains: bentonite, alkyl aryl sulfonate, sodium phosphate, glyceryl monoricinoleate, citric acid and perfume.

ABBOTT

205377

Iron therapy for anemia is almost as old as history itself

Celsus's empirical use of iron

Aulus Cornelius Celsus recommended an unusual form of iron therapy for the treatment of enlarged spleens—the oral administration of water that blacksmiths had used for dousing white-hot iron.

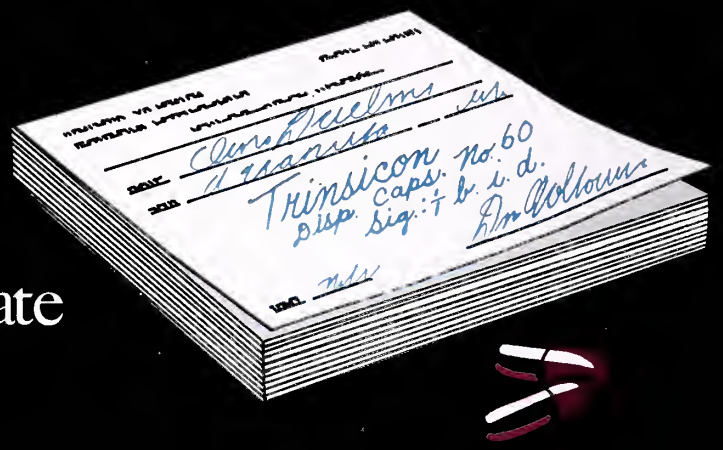
For more modern anemia therapy

Trinsicon®

Hematinic Concentrate with Intrinsic Factor

(See reverse side for prescribing information.)

Trinsicon®
Hematinic Concentrate with Intrinsic Factor



Description: Each Pulvule® contains—

Special Liver-Stomach Concentrate, Lilly (containing Intrinsic Factor)	240 mg.
Cobalamin Concentrate, N.F., equivalent to Cobalamin	7.5 mcg.
(The total vitamin B_{12} activity in the Special Liver-Stomach Concentrate, Lilly, and the Cobalamin Concentrate, N.F., is 15 micrograms.)	
Iron, Elemental (as Ferrous Fumarate)	110 mg.
Ascorbic Acid (Vitamin C)	75 mg.
Folic Acid	0.5 mg.

Indications: Trinsicon is a multifactor preparation effective in the treatment of anemias that respond to oral hematinics, including pernicious anemia and other megaloblastic anemias and also iron-deficiency anemia. Therapeutic quantities of hematopoietic factors that are known to be important are present in the recommended daily dose.

Vitamin B_{12} with Intrinsic Factor—When secretion of intrinsic factor in gastric juice is inadequate or absent (e.g., in Addisonian pernicious anemia or after gastrectomy), vitamin B_{12} in physiological doses is absorbed poorly, if at all. The resulting deficiency of vitamin B_{12} leads to the clinical manifestations of pernicious anemia. Similar megaloblastic anemias may develop in fish tapeworm (*Diphyllobothrium latum*) infection or after a surgically created small-bowel blind loop; in these situations, treatment requires freeing the host of the parasites or bacteria which appear to compete for the available vitamin B_{12}. Strict vegetarianism and malabsorption syndromes may also lead to vitamin B_{12} deficiency. In the latter case, parenteral therapy, or oral therapy with so-called massive doses of vitamin B_{12}, may be necessary for adequate treatment of the patient.

Potency of intrinsic factor concentrates is determined physiologically, i.e., by their use in patients with pernicious anemia. The liver-stomach concentrate with intrinsic factor and the vitamin B_{12} contained in two Pulvules Trinsicon provide 1½ times the minimum amount of therapeutic agent which, when given daily in an uncomplicated case of pernicious anemia, will produce a satisfactory reticulocyte response and relief of anemia and symptoms.

Concentrates of intrinsic factor derived from hog gastric, pyloric, and duodenal mucosa have been used successfully in patients who lack intrinsic factor. For example, Fouts *et al.* maintained patients with pernicious anemia in clinical remission with oral therapy (liver extracts or intrinsic factor concentrate with vitamin B_{12}) for as long as twenty-nine years.

After total gastrectomy, Ficarra found multifactor preparations taken orally to be "just as effective in maintaining blood levels as any medication that has to be administered parenterally." His study was based on twenty-four patients who had survived for five years after total gastrectomy for cancer and who had been taking two Pulvules Trinsicon daily.

Folic Acid—Folic acid deficiency is the immediate cause of most, if not all, cases of nutritional megaloblastic anemia and of the megaloblastic anemias of pregnancy and infancy; usually, it is also at least partially responsible for the megaloblastic anemias of malabsorption syndromes, e.g., tropical and nontropical sprue.

It is apparent that in vitamin B_{12} deficiency (e.g., pernicious anemia), lack of this vitamin results in impaired utilization of folic acid. There are other evidences of the close folic acid-vitamin B_{12} interrelationship: (1) B_{12} influences the storage, absorption, and utilization of folic acid, and (2), as a deficiency of B_{12} progresses, the requirement for folic acid increases. However, folic acid does not change the requirement for vitamin B_{12}.

Iron—A very common anemia is that due to iron deficiency. In most cases, the response to iron salts is prompt, safe, and predictable. Within limits, the response is quicker and more certain to large doses of iron than to small doses.

Each Pulvule Trinsicon furnishes 110 mg. of elemental iron (as ferrous fumarate) to provide a maximum response.

Ascorbic Acid—Vitamin C plays a role in anemia therapy. It augments the conversion of folic acid to its active form, folinic acid. In addition, ascorbic acid promotes the reduction of ferric iron in food to the more readily absorbed ferrous form. Severe and prolonged vitamin C deficiency is associated with an anemia which is usually hypochromic but occasionally megaloblastic in type.

Contraindications and Precautions: Anemia is a manifestation that requires appropriate investigation to determine its cause or causes.

Folic acid *alone* is unwarranted in the treatment of pure vitamin-B_{12}-deficiency states, such as pernicious anemia. Indeed, the use of folic acid in large doses in pernicious anemia without adequate vitamin B_{12} may result in hematologic remission but neurological progression.

As with all preparations containing intrinsic factor, resistance may develop in some cases of pernicious anemia to the potentiation of absorption of physiological doses of vitamin B_{12}. If resistance occurs, parenteral therapy, or oral therapy with so-called massive doses of vitamin B_{12}, may be necessary for adequate treatment of the patient. No single regimen fits all cases, and the status of the patient observed in follow-up is the final criterion for adequacy of therapy. Periodic clinical and laboratory studies are considered essential and are recommended.

In extremely rare instances, skin rash suggesting allergy has been noted following the oral administration of liver-stomach material. Allergic sensitization has been reported following both oral and parenteral administration of folic acid.

Hemochromatosis and hemosiderosis are contraindications to iron therapy.

Adverse Reactions: In rare instances, iron in therapeutic doses produces gastrointestinal reactions, such as diarrhea or constipation. Reducing the dose and administering it with meals will minimize these effects in the iron-sensitive patient.

Dosage: One Pulvule twice a day. (Two Pulvules daily produce a standard response in the average uncomplicated case of pernicious anemia.)

How Supplied: Pulvules Trinsicon® (hematinic concentrate with intrinsic factor, Lilly), in bottles of 60 and 500 and in Identi-Dose® (unit dose medication, Lilly) in boxes of 100.

Trinsicon®
Hematinic Concentrate with Intrinsic Factor
A Comprehensive Hematinic

Additional information available to the profession on request.

Eli Lilly and Company
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Lilly

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Upjohn's low-priced penicillin VK

Uticillin® VK

(potassium phenoxymethyl penicillin, U.S.P., Upjohn)

Available in 250 and 500 mg tablets;
250 mg/5 ml and 125 mg/5 ml flavored granules
for oral suspension

Upjohn The Upjohn Company
Kalamazoo, Michigan 49001

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69th Annual Meeting

NEVADA STATE MEDICAL ASSOCIATION

With Nevada Nurses' Association and Nevada Hospital Association

Harrah's Convention Center, Reno, Nevada

November 15-18, 1972

Credit: 8 hours AAFP

TUESDAY, November 14

8:00 a.m. REGISTRATION

9:00 a.m. AMA LEADERSHIP TRAINING PROGRAM

7:30 p.m. EXECUTIVE COMMITTEE MEETING

WEDNESDAY, November 15

8:00 a.m. REGISTRATION

9:00 a.m. AMA LEADERSHIP TRAINING PROGRAM

2:00 p.m. NSMA HOUSE OF DELEGATES, FIRST SESSION

THURSDAY, November 16

8:00 a.m. REGISTRATION

SCIENTIFIC PROGRAM

Clinical Pharmacology and Therapeutics

8:30 a.m. **Drugs and Our Society**
Frank J. Ayd, MD
Psychiatrist
Baltimore, Maryland

8:45 a.m. **Antihypertensives and Diuretics**
Kenneth L. Melmon, MD
Chief, Division of Clinical Pharmacology
University of California, San Francisco

9:30 a.m. **Antidepressants—Tranquilizers and Sedatives**
Frank J. Ayd, MD

10:15 a.m. VISIT EXHIBITS

10:30 a.m. **Drugs in Coronary Artery Disease and Cardiogenic Shock**
Kenneth L. Melmon, MD

11:15 a.m. **Antibiotics in Septic Shock and Life Threatening Illness**
Allan C. Kind, MD
Associate Professor of Medicine
University of Minnesota, Minneapolis

12:00 noon LUNCHEON

1:30 p.m. **Antibiotics in the Ambulatory Patient**
Allan C. Kind, MD

2:15 p.m. **Drug Interactions**
Kenneth L. Melmon, MD

3:00 p.m. VISIT EXHIBITS

3:15 p.m. **Gene Transfers: Therapy of the Future**
John Petricciani, MD
Laboratory of Pathology
Division of Biologics Standards, HEW
National Institutes of Health
Bethesda, Maryland

4:00 p.m. **Drug Regulation, Investigation and Monitoring: A Dialogue**
Frank J. Ayd, MD
Allan C. Kind, MD
Kenneth L. Melmon, MD
Ben Z. Taber, MD
Vice President and Medical Director
SYNTEX, Palo Alto, California
Philip G. Walters, MD
Special Assistant to the Director
Office of Scientific Evaluation
Bureau of Drugs, Food and Drug Administration
Rockville, Maryland

FRIDAY, November 17

7:00 a.m. NSMA PAST PRESIDENTS' BREAKFAST

8:00 a.m. REGISTRATION

SOCIOECONOMICS AND LEGISLATIVE MATTERS

Jointly with the Nevada Nurses' Association and Nevada Hospital Association

9:00 a.m. **What's Wrong with the System**
Sidney Wolff, MD
Coordinator, Ralph Nader's Health Research Group
Washington, D.C.

9:45 a.m. VISIT EXHIBITS

10:15 a.m. **Some Solutions through Partnership**
Hildegard Peplau, RN, EdD
Second Vice President
American Nurses' Association

10:45 a.m. REACTOR PANEL

11:15 a.m. **Defining the Socioeconomic Issues**
James Hamilton
Founder
School of Hospital Administration
University of Minnesota

11:45 a.m. REACTOR PANEL

12:30 p.m. LUNCHEON **Where We Seem to be Going—Congressional Approaches to Medical Care**
Russell B. Roth, MD
President-Elect, American Medical Association

2:30 p.m. **Some Solutions through Legislative Action—Local Level**
David Kinzer
Executive Vice President
Illinois Hospital Association

3:00 p.m. **Some Solutions through Governmental Action—National Level**
Gretchen Osgood, RN
Division of Nursing
Department of Health, Education and Welfare
Washington, D.C.

3:30 p.m. REACTOR PANEL

7:30 p.m. PRESIDENTS' RECEPTION

8:30 p.m. DINNER AND DANCING

SATURDAY, November 18

9:00 a.m. NSMA HOUSE OF DELEGATES, FINAL SESSION

Woman's Auxiliary Business meeting, November 16th. Luncheon and Tour of Harrah's Car Collection. Wives of physician registrants are welcome to attend all events.

When he goes back to work, will his old tensions go back with him?

When it's mandatory to keep the post-coronary patient calm, consider Valium® (diazepam).

Although he's promised to take it easy back on the job, you know he's going back to the same stressful circumstances that may have contributed to his hospitalization. Your prescription for Valium can calm him. Lessened anxiety and tension can help in decelerating his former pace. During the period of readjustment Valium helps quiet undue anxiety.

For moderate states of psychic tension, 5-mg or 2-mg Valium tablets *t.i.d.* or *q.i.d.* can usually provide reliable relief. For severe tension/anxiety states, the 10-mg tablets often produce desired results.

The most commonly reported side effects are drowsiness, ataxia, and fatigue. Until individual response is determined, caution patient against driving or operating dangerous machinery.

Valium® (diazepam)

For the tense cardiac patient who must be kept calm

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation; tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

Dosage: Individualize for maximum beneficial effect. *Adults:* Tension, anxiety and psychoneurotic states, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed; adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d.; adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. *Geriatric or debilitated patients:* 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) *Children:* 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

Supplied: Valium® (diazepam) Tablets, 2 mg, 5 mg and 10 mg; bottles of 100 and 500. All strengths also available in Tel-E-Dose™ packages of 1000.

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Nutley, N.J. 07110

"The history of science, and in particular the history of medicine . . . is . . . the history of man's reactions to the truth, the history of the gradual revelation of truth, the history of the gradual liberation of our minds from darkness and prejudice."

—George Sarton, from "The History of Medicine Versus the History of Art"

Are combination drug products useful in treatment involving concomitant use of two or more drugs?

Opinion

Results of a questionnaire to 7,000 physicians:

62.9%
Believe combination drug products are useful.

13.8%
Do not believe combination drug products are useful.

Are combination drug product useful in treatment involvin concomitant use of two or more drugs

Opinion & Dialogue

Doctor of Medicine

Louis Lasagna, M.D.
Professor and Chairman
Department of
Pharmacology & Toxicology
University of Rochester
School of Medicine
and Dentistry

Obviously, many drugs are given concomitantly. Whether it makes sense to combine medications in one preparation, be it capsule, tablet, or liquid, is a question that can be answered only by examining the advantages and disadvantages in the individual case.

Among the advantages is, first of all, convenience. The more medications that are taken concurrently and the more complicated the directions, the less likely the patient is to take medications accurately. From the standpoint of convenience and accuracy, and economy as well, you can make an important case for putting medications together in one preparation, as long as they are compatible.

By the same token, when you prescribe a properly tested and rational combination, you should have less worry about pharmaceutical or pharmacological compatibility – and about reasonable dosage ratios as well. Compatibility of the formulation should be demonstrated in the laboratory and clinic before the product is available for prescription—which is more than can usually be said for the physician's own spontaneous creations. And, the dosage ratios employed in rational precompounded combinations are designed to meet the needs of substantial numbers of "typical" patients.

There is no doubt that many "atypical" patients are to be found, and for them the prefabricated combination must be rejected. But that hardly argues for eliminating rational combinations from the market. Think, for example, of the problems that would arise if the components of widely accepted combinations, like the oral contraceptives and the diuretic-antihypertensives, always had to be prescribed, purchased and ingested separately.

One disadvantage that comes to mind is some doctors' unawareness of the ingredients a given combination contains. For example, a doctor might know that a patient is allergic to aspirin but forget that a certain analgesic mixture, which he knows only by its trade name, contains aspirin. His prescription, then, causes considerable discomfort, to say the least. This problem is a function of physician education, rather than of combination therapy as such. Improving doctors' knowledge about all medicaments they prescribe is a problem that deserves tackling on its own.

Another accusation leveled at combination drugs is that they encourage sloppiness of diagnosis and treatment. In many cases, however, a combination may prove to be the most effective choice. A good example of the usefulness of combinations appears in a recent article in the *Journal of Chronic Diseases* on the efficacy and side effects of an antihypertensive containing three ingredients, in which the track records of the combination drug and the individual ingredients were compared. Interestingly enough, whether the drugs were given individually or together, incidence and severity of side effects were the same. But blood pressure control was invariably better when the drugs were taken in one combination tablet than when they were taken separately (in "titratable" dosage) or in two or three different tablets.

Deciding which combinations constitute rational therapy obviously leads to a discussion of who is to determine which should be used and which should not. Realistically, I think combinations should be evaluated somewhat differently if they are old and established or new and untried.

In today's regulatory atmosphere, there is no possibility of a new combination being put on the market without a substantial amount of acceptable evidence in the form of controlled trials that show it to be safe and efficacious. On the other hand, I believe a different set of standards should apply to combination preparations that have been around for a long time. In other words, physician acceptance over a long period should be given some weight as evidence of the efficacy and safety of these drugs.

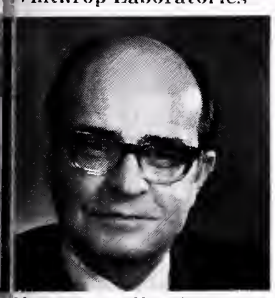
The FDA, however, does not seem to share this attitude. It often requires, for these older products, controlled trials that will monopolize the time of already overtired investigators and cost a great deal of money. I wish we could agree on a "grandfather clause" approach to preparations that have been in use for a number of years and that have an apparently satisfactory track record.

For example, I think some of the antibiotic combinations that were taken off the market by the FDA performed quite well. I am thinking particularly of penicillin - streptomycin combinations that patients—especially surgical patients—were given in injection. This made for less discomfort for the patient, less demand on nurses' time, and fewer opportunities for dosage errors. To take such a preparation off the market doesn't seem to be good medicine, unless actual usage showed a great deal of harm from the injection (rather than the proper use) of the combination.

The point that should be emphasized is that there are both rational and irrational combinations. The real question is, who should determine which is which? Obviously, the FDA must play a major role in making this determination. In fact, I don't think it can avoid taking the ultimate responsibility, but it should enlist the help of outside physicians and experts in assessing the evidence and in making the ultimate decision.

Maker of Medicine

V. Clarke Wescoe, M.D.
President
Vinthrop Laboratories



If two medications are ed effectively to treat a tain condition, and it is own that they are com- tible, it clearly is useful d convenient to provide em in one dosage form. would make no sense, in t it would be pedantic, insist they always be escribed separately. To oid the appearance of dantry, the "expert" de- es the combination be- ise it is a fixed dosage m. When the "expert" okes the concept of fixed sage form he obscures e fact that single-ingre- nt pharmaceutical prep- ations are also fixed sage forms. By a singular nantic exercise he im- es a pejorative meaning the term "fixed dose" ly when he uses it with spect to combinations. hat is ignored is the sim- fact that only in the rest of circumstances es any physician attempt titrate an exact thera- utic response in his pa- nt. It is quite possible at some aches and pains l respond to 500 mg. of pirin yet that fact does t militate against the *us- l* dose being 650 mg.

The other semantic ploy en called into play is to scribe a combination oduct as rational or irra- nal.

Take antibiotic mixtures, source of much of the ticism generated against combinations generally. Obviously, no one should be exposed willy-nilly to the potential side effects of two or three antibiotics when only one is needed. At the same time there are cases where it is prudent to prescribe more than one. The clinician is the judge in these circumstances, as he should be.

There is no clear definition of the word rational. Most persons, I suppose, would find it synonymous with reasonable, but in many circumstances it may best be defined as the opinion of those in power at the moment.

Other factors govern combination therapy, not the least of which has been its broad use by practicing physicians anxious to achieve convenience in prescribing, to reduce medication error, and to save money for their patients. Combinations clearly have met the test on all three counts.

I have been impressed by studies showing that the rate of error climbs markedly with the number of medications to be taken, even with sophisticated patients. When medically justified, therefore, this factor alone supports the logic of combination therapy.

The cost argument for combinations appears to be irrefutable. In 1971, R. A. Gosselin studied the 71 combination products (excluding oral contraceptives) among the 200 most prescribed drugs. The study found that if all 71 products were discontinued, and if each ingredient in these combinations were prescribed separately, the price of medicines to patients would jump by $443.2 million on a national basis! At a time when the cost of medical care is under so much fire, it would be nonsensical to boost costs without clearly irrefutable medical reasons.

The part played by government on this question, of course, is fundamental. The FDA should play a role in determining which combinations are reasonable. That role, as defined by law and regulation, is to ensure that any medication on the market is safe and effective in line with its label claims. Certainly combinations are entitled to as much consideration as single entities—neither more nor less. So long as the addition of one drug to another does not make either less safe, or less effective, so long as they are compatible in a formulation, we have a reasonable product. It makes no sense to recommend the use of two products for certain conditions and to deny their being combined in a single form. An unhappy side effect of the problem concerns the efficacy panel discussions of many products submitted for review. The term "effective, but" has been freely interpreted to mean "ineffective" in toto, regardless of the merit of the individual drugs. This interpretation has placed numerous useful combination products in needless jeopardy.

In reading the actual reports of the review panels, it seems clear that some of the ratings were based less on scientific research and clinical observation than on the "informed" opinions of the panelists. These "informed" opinions were accepted at face value, while the "informed" opinions of others who had used the products were rejected. All of this put combination products into a sort of scientific never-never land.

It should be kept in mind by all, government as well as others involved in our health care system, that advances in therapy are seldom made in leaps and bounds but rather by small painstaking steps—and that some of these steps have resulted from research in combination drugs as well as with single entities. Given the near-infinite biologic variation in patient response, this is hardly surprising to clinicians. It should not be to regulatory agencies either.

In the end, the practicing physician is in the best position to decide if a particular combination makes sense. Such a decision should not be made exclusively by those whose responsibility for continuing clinical care is limited. Clinicians are the best judges of efficacy because the ultimate proof of any product's effectiveness is acceptance by physicians who have observed its actions in patients over time. The corollary statement may be made about over-the-counter medicines, which would not long survive if they failed to afford the relief the user anticipates. That the antihistamine in a "cold" remedy may not *always* be necessary is no reason to proscribe the combination generally.

Opinion & Dialogue

What is your opinion, doctor?
We would welcome your comments.

PMA

The Pharmaceutical Manufacturers Association
1155 Fifteenth Street, N.W., Washington, D.C. 20005

When irritable colon feels like this

...in the presence of spasm or hypermotility, gas distention and discomfort, **KINESED®** provides more complete relief:

- ☐ belladonna alkaloids—for the hyperactive bowel
- ☐ simethicone—for accompanying distention and pain due to gas
- ☐ phenobarbital—for associated anxiety and tension

Contraindications: Hypersensitivity to barbiturates or belladonna alkaloids, glaucoma, advanced renal or hepatic disease.

Precautions: Administer with caution to patients with incipient glaucoma, bladder neck obstruction or urinary bladder atony. Prolonged use of barbiturates may be habit-forming.

Side effects: Blurred vision, dry mouth, dysuria, and other atropine-like side effects may occur at high doses, but are only rarely noted at recommended dosages.

Dosage: *Adults:* One or two tablets three or four times daily. Dosage can be adjusted depending on diagnosis and severity of symptoms.

Children 2 to 12 years: One-half or one tablet three or four times daily. Tablets may be chewed or swallowed with liquids.

STUART PHARMACEUTICALS | Division of ICI America Inc. | Wilmington, Del. 19899 | Pasadena, Calif. 91109

(from the Greek **kinetikos**,
to move,
and the Latin **sedatus**,
to calm)

KINESED®

antispasmodic/sedative/antiflatulent

Each *chewable tablet* contains: 16 mg. phenobarbital (warning: may be habit-forming); 0.1 mg. hyoscyamine sulfate; 0.02 mg. atropine sulfate; 0.007 mg. scopolamine hydrobromide; 40 mg. simethicone.

Chuckwalla (*Sauromalus obesus*):
This southwestern desert lizard seeks
shelter in crevices of rocks.
When attempts are made to probe him
from his niche, he gulps air
until his torso is distended up to
sixty per cent over its normal size...
thus wedging himself tightly
in place and preventing capture.

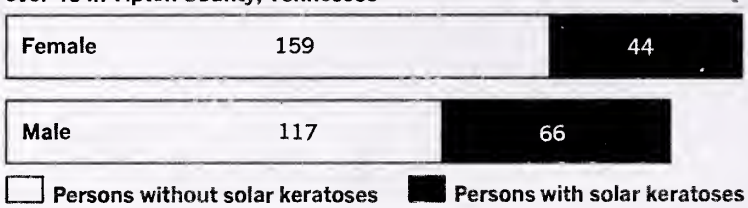
What it means to live and work in Tipton County, Tennessee

Persons who are white and over 40 have one chance in four of having solar keratoses... which may be premalignant

An epidemiologic study* conducted in Tipton County, Tennessee, revealed that 28.5% of white persons over 40 had solar keratoses; most had multiple lesions. Cluster sampling projected an estimated prevalence of 32.5% for white males and 19.5% for white females.

Though this is an unusually high percentage of affected persons, these lesions can occur in any white population, wherever people work or play out of doors.

Prevalence of solar keratoses in white persons over 40 in Tipton County, Tennessee



*Data on file, Hoffmann-La Roche Inc., Nutley, New Jersey.

Solar, actinic, senile keratoses

Called by many names, the typical lesion is flat or slightly elevated, brownish or reddish in color, papular, dry, adherent, rough, sharply defined; usually multiple lesions, chiefly on exposed portions of the skin.

Sequence/selectivity of response

Erythema in areas of lesions may begin after several days of therapy; height of reaction (only in affected areas)* usually occurs within two weeks, declining after discontinuation of therapy. Since this response is so predictable, lesions that do not respond should be biopsied to rule out the presence of a frank neoplasm.

Cosmetic results

Cosmetic results are highly favorable. Incidence of scarring is low—important with multiple facial lesions. Efudex should be applied with care near the eyes, nose and mouth.

5% cream–a Roche exclusive

Only Roche formulates the 5% cream... high in patient acceptability... high in clinical efficacy, especially for lesions of hands and forearms... economical.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Multiple actinic or solar keratoses.

Contraindications: Patients with known hypersensitivity to any of its components.

Warnings: If occlusive dressing used, may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.

Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.

Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.

Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with nonmetal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.

How Supplied: Solution, 10-ml drop dispensers—containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)aminomethane, hydroxypropyl cellulose, parabens (methyl and propyl) and disodium edetate.

Cream, 25-Gm tubes—containing 5% fluorouracil in a vanishing cream base consisting of white petrolatum, stearyl alcohol, propylene glycol, polysorbate 60 and parabens (methyl and propyl).

an alternative to conventional therapy

Efudex®

(fluorouracil)

cream/solution

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G.I. problems making her a fixture in your office?

'Milpath' can cut down her complaints by helping to control: bloating/cramping/pain/'nervous stomach' when aggravated by anxiety and tension*

For most patients:	*When spasm is severe:*
'Milpath'-400 (meprobamate 400 mg + tridihexethyl chloride 25 mg)	'Milpath'-200 (meprobamate 200 mg + tridihexethyl chloride 25 mg)
Usual adult dose: *One* tablet t.i.d. at mealtimes, and two tablets at bedtime.	Usual adult dose: *Two* tablets t.i.d. at mealtimes, and two tablets at bedtime.

* **INDICATIONS:** Based on a review of this drug by the National Academy of Sciences—National Research Council and/or other information, FDA has classified the indication as follows:

"Possibly" effective: as adjunctive therapy in peptic ulcer and in the irritable bowel syndrome (irritable colon, spastic colon, mucous colitis, and functional gastrointestinal disorders), especially when accompanied by anxiety or tension.

Final classification of this indication requires further investigation.

CONTRAINDICATIONS: Tridihexethyl chloride: Previous allergic or idiosyncratic reactions to it or related compounds; urinary bladder-neck obstructions (e.g., prostatic obstructions due to hypertrophy); pyloric obstructions because of reduced motility and tonus; organic cardiospasm (megaesophagus); glaucoma; possibly in stenosing gastric or duodenal ulcers with significant gastric retention. **Meprobamate:** Acute intermittent porphyria and allergic or idiosyncratic reactions to meprobamate or related compounds such as carisoprodol, mebutamate, tybamate, carbromal.

WARNINGS: Meprobamate: *Drug Dependence:* Physical and psychological dependence and abuse have occurred. Chronic intoxication, from prolonged use and usually greater than recommended doses, leads to ataxia, slurred speech, vertigo. Carefully supervise dose and amounts prescribed, and avoid prolonged use, especially in alcoholics and addiction-prone persons. Sudden withdrawal after prolonged and excessive use may precipitate recurrence of pre-existing symptoms (e.g., anxiety, anorexia, insomnia) or withdrawal reactions (e.g., vomiting, ataxia, tremors, muscle twitching, confusional states, hallucinosis; rarely convulsive seizures, more likely in persons with CNS damage or pre-existent or latent convulsive disorders). Therefore, reduce dosage gradually (1-2 weeks) or substitute a short-acting barbiturate, then gradually withdraw. *Potentially Hazardous Tasks:* Driving a motor vehicle or operating machinery. *Additive Effects:* Possible additive effects between meprobamate, alcohol, and other CNS depressants or psychotropic drugs. *Pregnancy and Lactation:* Safe use not established; weigh potential benefits against potential hazards in pregnancy, nursing mothers, or women of childbearing potential. Animal data at five times the maximum recommended human dose show reduction in litter size due to resorption.

PRECAUTIONS: Tridihexethyl chloride: Use cautiously in elderly males (possible prostatic hypertrophy). **Meprobamate:** To avoid oversedation, use lowest effective dose, particularly in elderly and/or debilitated patients. Consider possibility of suicide attempts; dispense least amount of drug feasible at any one time. To avoid excess accumulation, use caution in patients with compromised liver or kidney function. Meprobamate may precipitate seizures in epileptics.

ADVERSE REACTIONS: Tridihexethyl chloride: Dry mouth (fairly frequent at oral doses of 100 mg), constipation or "bloated" feeling, tachycardia, bradycardia, dilated pupils, increased ocular tension, weakness, nausea, vomiting, headache, drowsiness, urinary hesitancy or retention, dizziness. **Meprobamate:** *Central Nervous System:* Drowsiness, ataxia, dizziness, slurred speech, headache, vertigo, weakness, paresthesias, impairment of visual accommodation, euphoria, overstimulation, paradoxical excitement, fast EEG activity. *Gastrointestinal:* Nausea, vomiting, diarrhea. *Cardiovascular:* Palpitations, tachycardia, various forms of arrhythmia, transient ECG changes, syncope; also hypotensive crises (including one fatal case). *Allergic or Idiosyncratic:* Usually after 1-4 doses. Milder reactions: itchy, urticarial, or erythematous maculopapular rash (generalized or confined to groin). *Other:* leukopenia, acute nonthrombocytopenic purpura, petechiae, ecchymoses, eosinophilia, peripheral edema, adenopathy, fever, fixed drug eruption with cross reaction to carisoprodol, and cross sensitivity between meprobamate/mebutamate and meprobamate/carbromal. More severe, rare hypersensitivity: hyperpyrexia, chills, angioneurotic edema, bronchospasm, oliguria, anuria, anaphylaxis, erythema multiforme, exfoliative dermatitis, stomatitis, proctitis, Stevens-Johnson syndrome, bullous dermatitis (one fatal case after meprobamate plus prednisolone). Stop drug, treat symptomatically (e.g., possible use of epinephrine, antihistamines, and in severe cases corticosteroids). *Hematologic:* Agranulocytosis and aplastic anemia (rarely fatal), but no causal relationship established. Rarely, thrombocytopenic purpura. *Other:* Exacerbation of porphyric symptoms.

USUAL ADULT DOSAGE: One 'Milpath'-400 (meprobamate 400 mg + tridihexethyl chloride 25 mg) tablet three times a day at mealtimes and 2 at bedtime. For greater anticholinergic effect, 2 'Milpath'-200 (meprobamate 200 mg + tridihexethyl chloride 25 mg) three times a day at mealtimes and 2 at bedtime. Meprobamate dose should not exceed 2400 mg daily.

Not for use in children under age 12.

OVERDOSAGE: Tridihexethyl chloride: Acute overdosage can produce dry mouth, difficulty swallowing, marked thirst; blurred vision, photophobia; flushed, hot, dry skin, rash; hyperthermia; palpitations, tachycardia with weak pulse, elevated blood pressure; urinary urgency with difficulty in micturition; abdominal distention; restlessness, confusion, delirium and other signs suggesting acute organic psychosis. Empty stomach after administration of Universal Antidote and treat symptomatically as indicated. **Meprobamate:** Suicidal attempts with meprobamate, alone or with alcohol or other CNS depressants or psychotropic drugs, have produced drowsiness, lethargy, stupor, ataxia, coma, shock, vasomotor and respiratory collapse, and death. Empty stomach, treat symptomatically; cautiously give respiratory assistance, CNS stimulants, pressor agents as needed. Meprobamate is metabolized in the liver and excreted by the kidney. Diuresis and dialysis have been used successfully. Carefully monitor urinary output; avoid overhydration; observe for possible relapse due to incomplete gastric emptying and delayed absorption.

Before prescribing, consult package circular or latest PDR information.

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4-7-10-72

THE BOOK CORNER

New books received are acknowledged in this section and such acknowledgment must be regarded as sufficient return for the courtesy of the sender. Selection will be made for review in the interests of our readers and as space permits. Books are listed with advance data supplied by publishers. Prices quoted are not guaranteed. For further information, address queries to the publishers. Books here listed are available for lending from the Denver Medical Society Library.

Recent Acquisitions

Active Psychotherapy: By Alexander Herzberg. London, 1963, Research Books LTD. 152 p. Price: Gift.

Atlas of Nuclear Medicine; Reticuloendothelial System, Liver, Spleen and Thyroid, v. 3: By Frank H. DeLand and Henry N. Wagner. Philadelphia, 1972, Saunders. 292 p. Price: Not Set.

Cardiomyopathy: Edited by Albert N. Brest. Philadelphia, 1972, Davis. 395 p. Price: $15.60.

Crohn's Disease (Clinics in Gastroenterology Serles): Edited by Bryan Brooke. London, 1972, Saunders. 536 p. Price: Included in series.

Current Pediatric Diagnosis and Treatment: By Henry C. Kempe. 2nd ed. Los Altos, California, 1972, Lange. 1008 p. Price: $12.00.

General Urology: By Donald R. Smith. 7th ed. Los Altos, California, 1972, Lange. 436 p. Price: $8.50.

Increased Intracranial Pressure in Children: By William E. Bell and William F. McCormick. Philadelphia, 1972, Saunders. 260 p. Price: $14.40.

Neurobiology of Cerebellar Evolution and Development: Edited by R. Llinas. Chicago, 1969, American Medical Association. 931 p. Price: Review.

New York Sunday Times—Gift of Dr. Emil J. Massa.

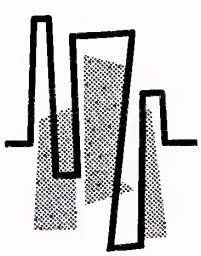
Pain and Religion: By Steven F. Brena. Springfield, Ill., 1972, Thomas. 160 p. Price: $8.95.

Pathology Annual: Edited by Sheldon C. Sommers. New York, 1972, Appleton-Century-Crofts. 426 p. Price: $16.50.

Review of Medical Microbiology: By Ernest Jawetz. 10th ed. Los Altos, California, 1972, Lange. 518 p. Price: $8.00.

Review of Medical Pharmacology: By F. Meyers and others. 3rd ed. Los Altos, California, 1972, Lange. 688 p. Price: $8.50.

Shoulder and Neck: By James E. Bateman. Philadelphia, 1972, Saunders. 615 p. Price: $32.50.



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Physicians Practice Management

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AURORA, COLORADO 80010

¿Habla español?

If not, the new Rocom Health History Questionnaire asks questions in Spanish...

1.	¿Le molestan coyunturas o músculos rígidos o dolorosos?	1. Sí [X]	No [ ]
2.	¿Se le hinchan las coyunturas?	2. Sí [ ]	No [X]
3.	¿Le molestan dolores en la espalda u hombros?	3. Sí [X]	No [ ]
4.	¿Le duelen los pies con frecuencia?	4. Sí [ ]	No [X]
5.	¿Está desabilitado en alguna manera?	5. Sí [ ]	No [X]
6.	¿Tiene algún problema con su piel?	6. Sí [ ]	No [X]
7.	¿Le pica o quema la piel?	7. Sí [ ]	No [X]
8.	¿Sangra por largo tiempo cuando se hace una pequeña cortadura?	8. Sí [ ]	No [X]
9.	¿Se lastima facilmente formando un cardenal o morete?	9. Sí [ ]	No [X]
10.	¿Se ha desmayado o se ha sentido como que se va a desmayar?	10. Sí [ ]	No [X]
11.	¿Tiene alguna parte del cuerpo siempre adormecida?	11. Sí [X]	No [ ]
12.	¿Ha tenido alguna vez convulciones?	12. Sí [ ]	No [X]
13.	¿Le ha cambiado ultimamente su letra al escribir?	13. Sí [ ]	No [X]
14.	¿Tiene tendencia a temblar o menearse mucho?	14. Sí [ ]	No [X]
15.	¿Se pone nervioso en presencia de personas extrañas?	15. Sí [X]	No [ ]
16.	¿Se le hace difícil tomar decisiones?	16. Sí [X]	No [ ]
17.	¿Se le hace difícil concentrar o recordar?	17. Sí [X]	No [ ]
18.	¿Se siente solo o deprimido?	18. Sí [ ]	No [X]
19.	¿Llora a menudo?	19. Sí [ ]	No [X]
20.	¿Diría usted que tiene una perspectiva irremediable?	20. Sí [ ]	No [X]
21.	¿Tiene dificultad en relajar o reposar?	21. Sí [X]	No [ ]
22.	¿Tiende a preocuparse demasiado?	22. Sí [X]	No [ ]
23.	¿Le molestan o asustan algunos sueños o pensamientos?	23. Sí [ ]	No [X]
24.	¿Tiende a ser tímido o sensitivo?	24. Sí [ ]	No [X]
25.	¿Se molesta mucho cuando lo critican?	25. Sí [X]	No [ ]
26.	¿Pierde el genio con frecuencia?	26. Sí [X]	No [ ]
27.	¿Cosas pequeñas lo hacen molestar?	27. Sí [X]	No [ ]
28.	¿Le molesta cualquier trabajo o problemas familiares?	28. Sí [ ]	No [X]
29.	¿Tiene algún problema con su vida sexual?	29. Sí [ ]	No [X]
30.	¿Ha considerado alguna vez suicidarse?	30. Sí [ ]	No [X]
31.	¿Ha deseado alguna vez, o buscado, ayuda psiquíatrica?	31. Sí [X]	No [ ]

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provides answers in English

13. MUSCULOSKELETAL
- [X] aching muscles or joints
- [X] swollen joints
- [ ] back or shoulder pains
- [ ] painful feet
- [ ] handicapped

14. SKIN
- [ ] skin problems
- [ ] itching or burning skin
- [ ] bleeds easily
- [ ] bruises easily

15. NEUROLOGICAL
- [ ] faintness
- [X] numbness
- [ ] convulsions
- [ ] change in handwriting
- [ ] trembles

16. MOOD
- [X] nervous with strangers
- [X] difficulty making decisions
- [X] lack of concentration or memory
- [ ] lonely or depressed
- [ ] cries often
- [ ] hopeless outlook
- [X] difficulty relaxing
- [X] worries a lot
- [ ] frightening dreams or thoughts
- [ ] shy or sensitive
- [X] dislikes criticism
- [X] loses temper
- [X] annoyed by little things
- [ ] work or family problems
- [ ] sexual difficulties
- [X] considered suicide
- [X] desired psychiatric help

When your patient speaks little English and your Spanish is limited or nonexistent, you need the new ROCOM Health History Questionnaire (Spanish).*

The uniqueness of this new ROCOM system lies in the fact that the questions are asked in *Spanish,* but you read the answers in *English.* The form itself does the "translating."

You have to see it yourself to appreciate the ease and completeness of this new history-taking technique, which includes 129 questions covering all body systems.

*Created and developed by Patient Care Systems, Inc.

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Box 169, Fairview, New Jersey 07022

For information about the new Rocom Health History Questionnaire (Spanish) and other components in the Rocom Medical Management System, please fill out the coupon and send it to us.

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T MMS-1H

if skin is infected, or open to infection...

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In tubes of 1 oz. and ½ oz. for topical use only.

NEOSPORIN for topical infections due to susceptible organisms, as in impetigo, surgical aftercare, and pyogenic dermatoses.

Precaution: As with other antibiotic preparations, prolonged use may result in overgrowth of nonsusceptible organisms and/or fungi. Appropriate measures should be taken if this occurs. Articles in the current medical literature indicate an increase in the prevalence of persons allergic to neomycin. The possibility of such a reaction should be borne in mind.

Contraindications: Not for use in the external ear canal if the eardrum is perforated. This product is contraindicated in those individuals who have shown hypersensitivity to any of its components.

Complete literature available on request from Professional Services Dept. PML.

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The Quiet Guy

THERE ARE MANY AREAS of dedication in this world—many of which are visible and even flamboyant and many which are quiet, often unappreciated—each just as important as the other. The people in the "quiet" spots are all the more remarkable because, when the accounting is done, they have contributed so much. All of us are privileged to know some of these people, but often we don't even realize the jobs they are doing.

Such a person is, has been, and will be Carl H. McLauthlin—or "Bud" to an awful lot of people in Denver who have known him from grade school to right now. This month he takes over from another "quiet one", Dr. Macomber, in a job which requires constant dedication, occasional ridicule, untold hours of work, devotion to excellence, and a quiet sense of knowing he is doing something worthwhile. Carl has been Assistant Editor of the *Rocky Mountain Medical Journal* for many years; he has now been asked to be Editor—a great honor!

But that's not enough; he has been an important cog in the wheels of the Denver Medical Society, the Colorado Medical Society, and several other places, earning one of the most enviable of things, i.e. genuine respect. Carl has served as Vice President of the Denver Medical Society two times, Vice President of the Colorado Medical Society two times, a Trustee of both societies, and chairman of innumerable committees as well as a member of Grievance committees—these are only some. He has been asked many times to do even more—one could spout for quite a while.

The only way we can get this editorial into the *Journal* as he becomes its "Chief" is to hide the proofs and sneak it by. We are proud to know a man of his dedication, ability, counsel, quiet force, and amazing equanimity; we are proud to have him as "The Chief".

Harry L. Whitaker

WHEN ONE OF OUR colleagues is still in active practice with only one more decade to go to reach the century mark, let us present his accolade *now,* just to be sure. Those of us who know him well may not be around at the end of the next decade but, if we are, a hundred gun salute is hereby promised.

Born in 1882 in Marathon, Ohio, Harry Whitaker was destined—to our good fortune—to become a westerner. He graduated at the top of his class in Baylor Medical School in 1913. Associated with Dr. Edward F. Carey who later became President of the American Medical Association, Harry overworked as an enthusiastic surgeon and his health failed. He followed the path of many other illustrious predecessors in our profession to Colorado. Like most of them, he recovered and chose the specialty of ENT where he is active to this day.

Svelte and statuesque, erect and with long strides, younger and lesser men are inspired to throw their shoulders back as they wonder how he does it. First, of course, is fundamental quality; then, good care of splendid traits. His library contains all the honors in golf from the Denver Country Club, where he is a life member. And another love is Masonry from 1907 through Scottish Rite Degrees in Dallas, Colorado Consistory No. 1, Knight Commanders of the Court of Honour (KCCH), Master of his lodge, and the thirty-third degree plus countless other honors.

And the other major love of his life is lovely Inez, beautiful to see and delightful to know. Three children are Mrs. Adrian Smith of Denver, Mrs. Littleton C. Barkley, Jr., of Palos Verdes Estates in California, and Harry L. Whitaker, Jr., a hotel manager in San Francisco.

Relatively minor talents and activities must be mentioned in order to add a semblance of justice to this sketch of this remarkable man. He writes poetry, is a patron of the arts, a loyal supporter of the Denver Civic Symphony, Allied Arts, and Art Museum, a student of opera and symphonic music.

Dr. Whitaker delivered the principal address at the annual staff banquet of St. Luke's Hospital last February. Without a note, and before an audience attuned to a festive occasion, he held it silent and attentive for about 40 minutes. This was a record, for a lesser man would have lost his listeners about half way through (if not sooner).

Hearty and affectionate greetings to you, Harry. And someone among us will be around, hopefully, to sum up and add to these your accomplishments during the next ten years!

Leadership in Health Care

SENATOR GEORGE MCGOVERN stated recently in the Senate that our nation's health care system is in "critical condition". He asserted that "we must break this system before it breaks our health and before it breaks the people of all income levels who suffer accidents and disease." It is not clear just what he means by "breaks". According to actual figures we are already broke. Granted, modern medical care is expensive, but it is worth it in terms of preservation of health and extension of life. The big question is who shall pick up the tab.

Senator McGovern went on to say that the federal government cannot and should not attempt to solve all health problems by itself, but must take the leadership role in medical care. So just where does that put us? His statement makes about as much sense as if the medical profession should declare that it must take the leading role in running the government to save it from itself. In this era of specialization, big government grasps for the controls of businesses and professions as if it were the master of all.

A book bearing the name of Senator Ted Kennedy as author is entitled, *In Critical Condition—the Crisis in America's Health Care.* Full page ads for it have appeared in some newspapers. Our guess is that McGovern's statement that our nation's health care system is depraved also is not original. In fact, such is the popular claim of our critics who have political ambitions and want to latch onto the great block of unthinking or uninformed voters who think governmental medicine is "free". This has been the entering wedge into the Welfare State beginning in the Old World many decades ago. It is still the gimmick which plays upon the sympathy of the voter for the sick, disabled, handicapped, and the aged. It still appeals to the won't works and the don't works.

We hope that the majority of voters recognize the catastrophic dangers of such proposals as these to medical care in our country. We pray that there are enough Americans for Free Enterprise to preserve the nation our forefathers established and fought for 200 years ago.

The Uncommon Man

I DO NOT CHOOSE to be a common man.

It is my right to be uncommon—if I can.

I seek opportunity—not security. I do not wish to be a kept citizen, humbled and dulled by having the state look after me.

I want to take the calculated risk, to dream and to build, to fail and to succeed.

I refuse to barter incentive for a dole. I prefer the challenges of life to the guaranteed existence; the thrill of fulfillment to the stale calm of utopia.

I will not trade freedom for beneficence nor my dignity for a handout. I will never cower before any master nor bend to any threat.

It is my heritage to stand erect, proud and unafraid; to think and act for myself, enjoy the benefit of my creations and to face the world boldly and say, this I have done.

All this is what it means to be an American.

"My Creed" by Dean Alfange

Lung biopsy in diffuse pulmonary disease

Joseph L. Kovarik, MD, Denver, Colorado

WHEN BIOPSY IS INDICATED in patients with diffuse parenchymal pulmonary disease, open lung biopsy utilizing a "limited" thoracotomy is the procedure of choice. This method offers the highest diagnostic yield and the lowest incidence of complications.

Adapting a medical application of Sutton's Law*, biopsy of an area of involved pulmonary parenchyma is frequently necessary to establish a definitive diagnosis in patients with diffuse pulmonary disease. While "diffuse pulmonary disease" is generally assumed to be bilateral, occasional cases of unilateral involvement may be encountered. Early biopsy means early diagnosis and early discharge from the hospital. Diagnosis is essential in order to initiate appropriate treatment, determine prognosis, and evaluate for medicolegal purposes.

Review of previous chest x-rays, skin tests, and a detailed history with particular attention to occupational and environmental exposure may offer valuable clinical clues, while examination of sputum or pleural fluid, bronchial brushing, and biopsy of cervical and/or mediastinal lymph nodes are often diagnostic. However, Shields and Sweany have shown that biopsy of nonpalpable scalene nodes was diagnostic in only 20 per cent of their patients.[1]

In the series reported by Gaensler, lung biopsy was necessary to establish a diagnosis in one-third of the cases, and the preoperative diagnosis was in error in over 50 per cent. He also decried the fact that there was an average delay of one and one-half years from discovery of an abnormal chest x-ray to biopsy, while only 40 per cent had lung biopsy within the first four months. Other authors have also emphasized that lung biopsy should not be last on the list of possible diagnostic procedures, and that the preoperative diagnosis was erroneous in 45 per cent of their patients.[1,2]

Since the original report by Klassen in 1949 of lung biopsy utilizing a "limited" thoracotomy, this procedure has become the choice of most thoracic surgeons. In 1967 he reported a 17-year experience involving 270 lung biopsies. Complications included pneumothorax in six patients, hemothorax in four patients, and two deaths attributable to the operation. Open lung biopsy provides tissue sufficient for diagnosis in 89 to 95 per cent of cases with minimal mortality and morbidity even in "respiratory cripples".[1,2,3,4]

*Sutton's Law: When notorious bank robber, Willie Sutton was asked why he robbed banks, he replied, "Because that's where the money is".

TABLE 1

Patient	Age	Sex	Diagnosis
J. P.*	39	F	Alveolar proteinosis
K. D.	75	F	Bronchiolar carcinoma
N. D.	29	M	Sarcoidosis
M. G.	64	F	Bronchiolar ectasis with bronchiolitis
S. B.†	43	F	Malignant lymphoma of lung
D. M.	18	M	Hodgkin's granuloma
H. I.	48	M	Non-caseating granuloma with foreign body reaction
Y. W.‡	35	M	Pneumocystis carinii (known long-standing Hodgkin's disease)
A. K.	75	F	Granulomatus non-caseating pneumonitis
L. E.	59	F	"Lupus lung"
M. B.	44	F	Metastatic carcinoma

*Fig. 1; †Fig. 2; ‡Fig. 3.

Present Series

Table 1 lists examples of various types of diffuse lung disease encountered in a personal series. Experience during the past two years involving ten cases of open lung biopsy revealed that there were no major complications (i.e., hemorrhage, empyema); one patient required insertion of an intercostal tube for postoperative pneumothorax, and there were no deaths directly related to the surgical procedure. Adequate specimens were obtained in all cases and some patients were discharged from the hospital as early as the third or fourth day after operation.

Fig. 1a. Chest x-ray showing bilateral pulmonary infiltrates in lower lung fields.

Technic

While local anesthesia may be used, general endotracheal anesthesia is preferred. An anterior intercostal incision eight to ten centimeters in length is utilized with wedge resection of an area of lung selected by direct vision and palpation. The pleural space is evacuated by a catheter held under water while the anesthesiologist exerts positive pressure, and the catheter is removed as the skin is closed. Some surgeons routinely leave a catheter in place for 24 to 48 hours as a safety precaution, but patients can be ambulatory earlier without the encumbrance

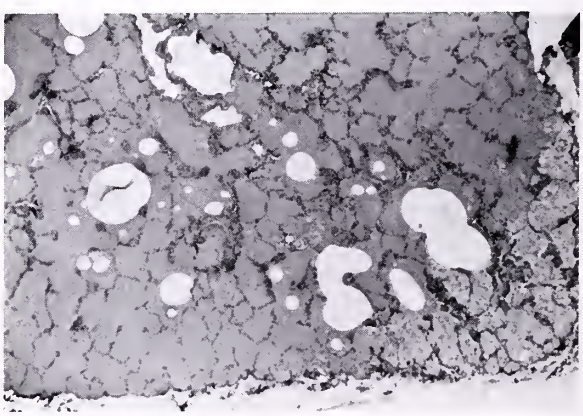

Fig. 1b. Section of lung with alveoli filled with "proteinaceous" eosinophilic-staining material of alveolar proteinosis.

of a tube. If there is any question regarding security of the biopsy site, the catheter should be left in place.[5]

Discussion

In spite of the proven safety and efficacy of open lung biopsy, percutaneous needle biopsy is occasionally mentioned as an alternative procedure. However, Manfredi and Krumholz state, "This procedure should not be undertaken unless a chest surgeon has been alerted and is aware of the patient's problem. The reason for this is twofold: first, the surgeon should be available in case immediate surgical intervention should become necessary; and second, if the needle biopsy should fail to provide a diagnosis, an open chest surgical procedure will need to be considered."[6] In addition to being hazardous, needle biopsy often results in insufficient tissue for histologic and bacteriologic examination, with a lower diagnostic yield varying from 66 per cent in one series, to inadequate specimen (13 per cent) and incorrect diagnosis (four per cent) in another. Complications include an incidence of pneumothorax of 15 to 16 per cent, fatal hemorrhage, air embolism with hemiparesis, and tumor seeding of pleural or cutaneous needle tract.[5,6,7,8,9,10]

Other reported technics include transbronchoscopic pulmonary biopsy and percutaneous trephine biopsy utilizing a high-speed drill. This latter method resulted in a 65 per cent incidence of pneumothorax and inadequate specimen in 15 per cent.[11,12]

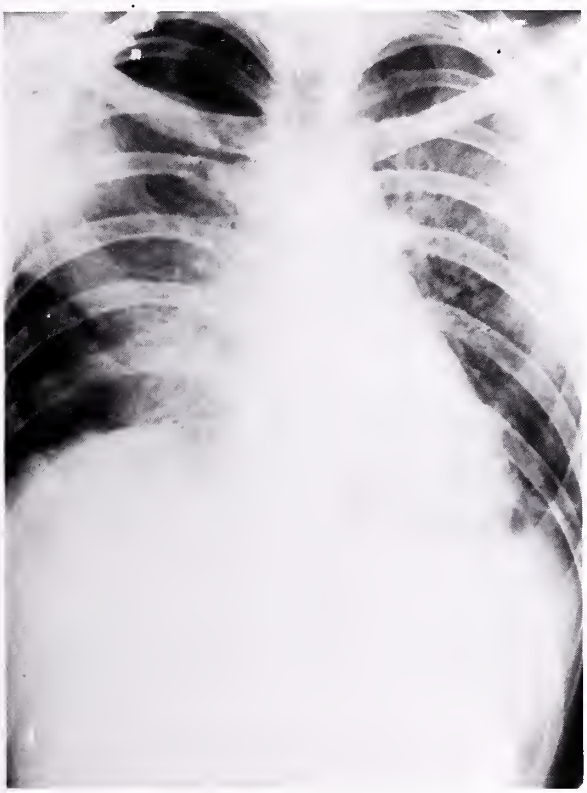

Fig. 2a. Chest x-ray of patient with long-standing Hodgkin's disease who developed diffuse pulmonary infiltrate.

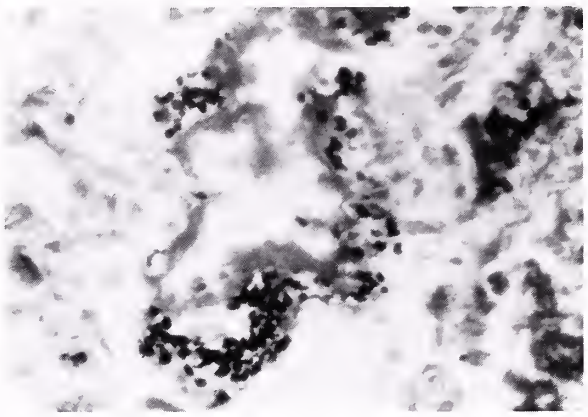

Fig. 2b. Organisms of pneumocystis carinii in lung biopsy specimen.

Fig. 3. "Fluffy" x-ray appearance of pulmonary lymphoma.

Summary

Open lung biopsy by "limited" thoracotomy in diffuse pulmonary disease has the following advantages:

(1) Selection of appropriate area for biopsy by direct vision and palpation.

(2) Biopsy specimens of sufficient size for histologic, bacteriologic, and histochemical examination.

(3) Direct suture of biopsy site to minimize leakage of air or blood.

(4) Incision can be easily extended if pulmonary resection is deemed advisable.

Because of these advantages the diagnostic yield is greater and the incidence of complications is lower than in other methods of pulmonary biopsy. •

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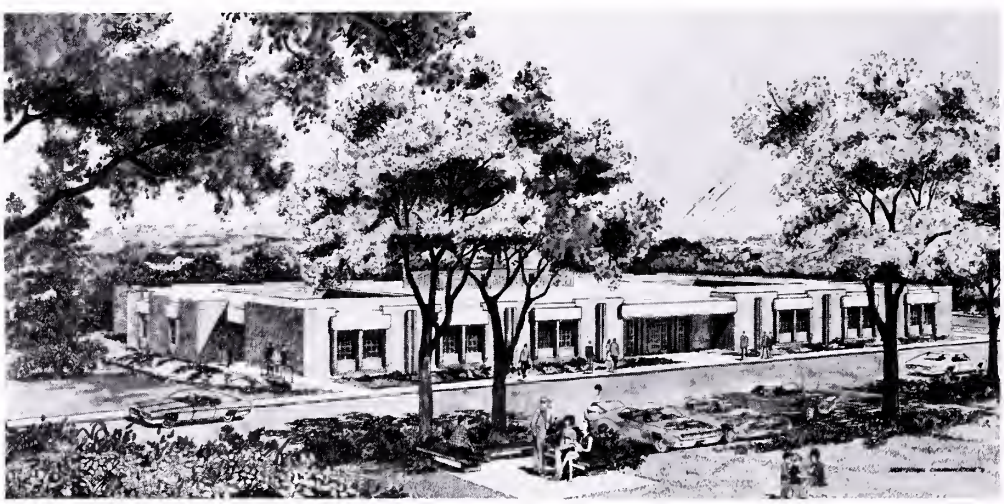

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Extrapulmonary tuberculosis*

Difficulties in diagnosis

Domingo Baitlon, MD, and Neill B. McGrath, MD,
Pueblo, Colorado

Five cases are presented to illustrate some difficulties in diagnosis when tuberculosis manifests itself in the absence of overt pulmonary involvement.

As a result of modern sanitation methods, early detection by skin testing, radiologic chest surveys, and microbiologic testing and the increasing effectiveness of chemotherapy, the mortality and morbidity from tuberculosis in this country continue to decline.[1,2] In spite of these measures, an undetermined number of actively infected individuals are still at large in the general population from which many are continually admitted to open wards of general hospitals for undiagnosed illnesses, eventually shown to be tuberculosis.

During the past four years (1968-1971), in 35 patients, a diagnosis of active tuberculosis, proved bacteriologically by cultures or morphologically by the presence of characteristic histological lesions harboring acid-fast bacilli, or by both methods, was made in our laboratory. Of these patients, 24 (69 per cent) had clinical or radiographic evidence of pulmonary involvement on admission and the diagnosis in most instances was made without undue difficulty. In the other 11 persons (31 per cent), the initial clinical manifestation was extrapulmonary. The lymphatic tissue was involved in four of these, the reproductive organs in three, skin and subcutaneous tissue in two, the urinary tract in one and gastrointestinal tract in another. In all but one of these patients, surgical intervention was necessary for the procurement of tissue for diagnosis or for definitive therapy. Because tuberculosis was unsuspected, the diagnosis was often unduly difficult as illustrated by the following cases.

CASE REPORTS

Case 1: A 79-year-old female was admitted to the hospital on January 7, 1969 for recurrent "boils" in the skin of the neck and shoulders of 15 months' duration. She had been attended by two physicians at different times who had prescribed antibiotics with only temporary or incomplete improvement. Hospitalization for further diagnostic work was advised when ulcerations and new lesions appeared. She denied fever, cough, or weight loss. Previously, she had cholecystectomy for cholecystitis.

Physical examination revealed a well-developed, apparently well-nourished elderly female in no distress. There were several actively draining or partly healed lesions and pitted scars in the skin and subcutaneous tissue of the neck and shoulders (Fig. 1). The remainder of the examination was noncontributory.

Admission laboratory work revealed a mild anemia. Chest film showed mild fibrotic lesions but no active parenchymal disease. Biopsy of a

Fig. 1. Draining lesions and scars in the skin of the neck and shoulder.

*From the Department of Pathology, Parkview Episcopal Hospital, Pueblo, Colorado. Case 5 was presented in part at the monthly meeting of the Pueblo Clinical and Pathological Society on February 9, 1972.

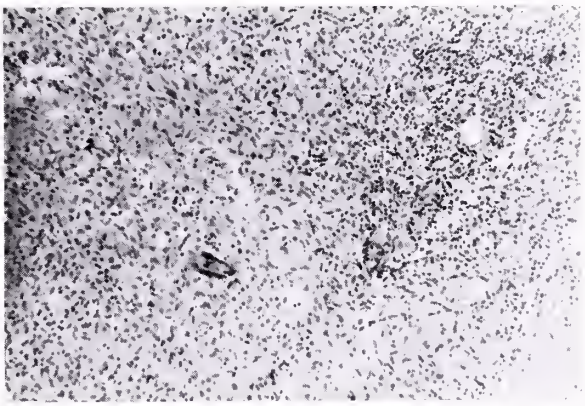

Fig. 2. Partly obscured granuloma in subcutaneous tissue (H & E, x100).

Fig. 3. Granuloma with prominent Langhans giant cells in cervical lymph node (H & E, x100).

lesion disclosed an acute and chronic, focally necrotizing lesion of the skin and subcutaneous tissue. Routine bacteriologic cultures grew a beta-hemolytic *Streptococcus* and *Clostridium perfringens*. These organisms were thought to be etiologic, and appropriate antibiotics were prescribed. However, cultures were subsequently positive for *Mycobacterium tuberculosis*. A review of the biopsy revealed a few granulomas obscured by the heavy inflammatory infiltrate (Fig. 2). No acid-fast bacilli could be found. She was given Pyridoxine and Para-aminosalicylic. When last seen in August of 1970, the lesions had healed but the scars remained.

Cutaneous lesions of tuberculosis are no longer frequently encountered in this country.[2] As such, the diagnosis was not suspected for a long period of time. This case is unusual histologically in that the granulomatous lesions were obscured by a superimposed acute and chronic infiltrate due to Streptococcal and Clostridial infections. The case illustrates the importance of obtaining cultures even in the absence of typical morphologic lesions of tuberculosis.

Case 2: An 18-year-old female was hospitalized on February 14, 1968 with frequent sore throat, swelling in the left cervical region, and seven-pound weight loss over a two-month period. Prior to admission, she had received antibiotics and was told to place warm soaks over the swelling. The lesion persisted and biopsy was advised. She denied fever, cough, or sputum production. She had not had any serious illnesses and her parents and one brother were living and well.

Physical examination revealed a well-developed, young female who was afebrile. A 5mm ulcer was noted in the left pharygeal pillar and a 4 x 2.5 x 2cm mass was palpated beneath the mid-portion of the left sternocleidomastoid muscle. The remainder of the examination was normal.

Laboratory work revealed a mild anemia. Chest x-ray showed no active parenchymal disease. Biopsy of a portion of a lymph node showed multiple caseating granulomas (Fig. 3), some containing acid-fast bacilli. Since tuberculosis was not suspected and the specimen was submitted in formalin, cultures were not made. Subsequent smears and cultures of sputum and gastric washings were negative for mycobacteria. The skin test was strongly positive. She was given isoniazid and streptomycin.

One year later, she was re-admitted with a draining sinus at the site of the biopsy. The chest film was again normal. A re-biopsy of the lesion showed similar histologic findings and a culture confirmed the presence of *M. tuberculosis*. She was placed on triple drug therapy consisting of PAS, isoniazid, and streptomycin and has done well.

This case may represent an unusual instance of oropharyngeal tuberculosis with cervical nodal involvement. However, this was not confirmed by biopsy or culture of the pharyngeal ulcer. Since pulmonary disease was not apparent on the chest film, the diagnosis was not suspected. A re-biopsy of the lesion was necessary for culture and sensitivity studies one year after the initial biopsy.

Case 3: A 68-year-old retired "hard-rock" miner was admitted on July 15, 1970 for cough productive of white sputum, pain in the left side of the chest and 25 pound weight loss over a period of several months. Twelve months and seven months previously, he had been admitted to two different hospitals with a diagnosis of acute pyelonephritis. Chest film on each admission showed emphysema and fibronodular lesions thought to be associated with his previous occupation. The urine was not cultured for mycobacteria on either occasion, but one sputum culture was reported as negative for this organism. On each admission, antibiotic therapy for pyelonephritis apparently resulted in temporary improvement.

Physical examination revealed a febrile and acutely ill elderly male. Breath sounds were decreased in the left base and heart tones were distant. The remainder of the examination was non-contributory.

Chest film now showed a pleural effusion on the left side. The hemogram was normal and the urine showed eight to ten white blood cells per

high power field. Smears made from aliquots of three 24-hour urine specimens were negative for acid-fast bacilli. However, subsequent concentration of all three specimens yielded a few acid-fast organisms and the cultures were subsequently positive for *M. tuberculosis.* Cultures of sputum and thoracic fluid were also positive. The patient was given PAS, isoniazid, and pyridoxine and has apparently done well.

In this case, renal tuberculosis was not suspected until overt pulmonary involvement developed. It illustrates the reliance placed on the chest film as an indicator of whether or not tuberculosis might be present. It also shows that the diagnosis often depends on the thoroughness with which specimens are examined for these organisms.

Case 4: A 40-year-old female was admitted on October 10, 1968 with complaints of intermittent lower abdominal pain and vaginal discharge of several months' duration. Menarche was at age 12 years, and her menstrual periods were regular but scanty and of short duration, occasionally lasting only one day. She became completely amenorrheic at age 28 and had not become pregnant in 18 years of married life. She had concurrent duodenal ulcer disease.

Physical examination revealed a well developed, well nourished female in no distress. She was afebrile. The heart and lungs were normal. The abdomen revealed no organomegaly. Pelvic examination revealed a 3 x 3 x 2cm mass in the left adnexal region. A small amount of creamy discharge appeared at the external cervical os.

Admission hemogram was normal. Serologic test for syphilis was negative. Chest film showed no abnormality. Laparotomy revealed multiple fibrous adhesions in the pelvis. The left ovary was moderately enlarged and the right contained calcified nodules. Hysterectomy and salpingo-oophorectomy were done. Pathologic examination revealed multiple granulomas containing acid-fast bacilli in the endometrium and in both ovaries (Fig. 4). She was treated with isoniazid and has done well. Two subsequent chest films have been normal.

Fig. 4. Caseating granuloma in ovarian stroma (H & E, x100).

Retrospectively, it can be reasonably assumed that this patient's menstrual disorders and sterility were secondary to long-standing genital tuberculosis. Two of the three patients with genital tuberculosis in this group of patients had no children. Again in this case, the opportunity to culture the specimen was lost because the diagnosis was not suspected and the specimen submitted in fixative.

Case 5: A 70-year-old female, admitted on November 8, 1970, complained of epigastric distress, anorexia, intermittent nausea and vomiting, and 20-pound weight loss over a one-year period. She denied fever or chronic cough and stated that she had not had any serious illnesses or operations. She had been married and widowed and gave no family history of tuberculosis.

Physical examination revealed a well developed, well nourished female who was afebrile and in no distress. The heart and lungs were normal. The abdomen was soft with some epigastric tenderness but no organomegaly.

Routine laboratory values were normal. Chest x-ray showed mild cardiomegaly but no active parenchymal disease. Further studies, including an upper GI series, revealed no other abnormality. Laparotomy disclosed three stenotic lesions in the distal ileum, and enlarged regional mesenteric lymph nodes. The opened specimen revealed three ulcerated and indurated lesions (Fig. 5). Microscopically, many granulomas (Fig. 6), some

Fig. 5. Ulcerated tuberculous lesion in the distal ileum.

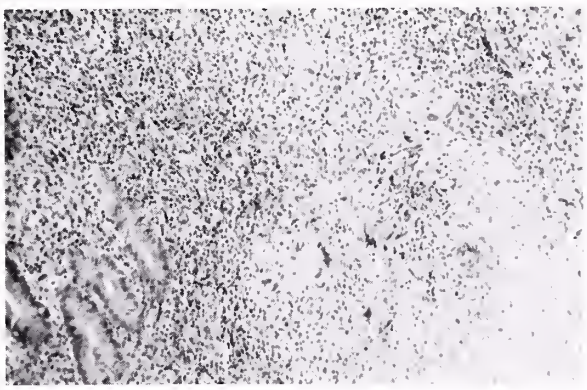

Fig. 6. Confluent granulomata in mucosa of ileum (H & E, x100).

containing acid-fast bacilli, were found in the intestinal lesions and in the mesenteric lymph nodes. Subsequent cultures of bone marrow, sputum and gastric washings were negative for mycobacteria. The tuberculin test was positive.

On further questioning, the patient admitted to an illness diagnosed as tuberculosis for which she received treatment some 25 years previously. She had been fearsome that the present illness was a recurrence. She was started on antituberculous therapy but subsequently left the county and was lost to followup.

In this patient, a presumptive diagnosis of intestinal tuberculosis could perhaps have been made if the patient had given a correct history. Pathologically, tuberculosis was not suspected until microscopic examination of the lesions was made. The formalin-exposed specimen failed to grow mycobacteria.

Discussion

If tuberculosis is to be eradicated, or at least placed under stringent control, the diagnosis must be made at an early stage of the disease, before it is disseminated to a susceptible population. The more useful means of detection and diagnosis are limited and include the tuberculin skin test in its various forms, the chest radiograph, morphologic and bacteriologic examination of appropriate clinical and surgical specimen and in some instances, the injection of suspected material into animals for eventual recovery of mycobacteria.

The marked reduction in tuberculin-positive skin reactors, especially in younger people, has made the tuberculin test a valuable tool. Preventive chemotherapy and/or the close surveillance of positive reactors are important reasons for the decreasing number of advanced cases of tuberculosis. On the other hand, since the value of the skin test is augmented by the knowledge of a recent conversion, it is of less value as a screening device in the older individual in whom a previous skin test has not been made or the results not known. The latter is brought into focus when one realizes that there are 25 to 35 million tuberculin-positive reactors in this country.[2,3] In the patient with unsuspected extrapulmonary tuberculosis, the skin test would probably not be performed initially or would be of questionable value without additional evidence of active tuberculosis.

At present, the respiratory tract is believed to be the prime portal of entry of human tuberculosis.[2] This is reflected in statistics on new reported cases of active tuberculosis in which nine out of ten cases involve the pulmonary tree.[1] This fact makes the chest x-ray an important means of detection of tuberculosis in its early stage. It is especially useful in the survey of people living in crowded conditions and in persons known to have come in contact with infected persons.[3]

In cases of extrapulmonary tuberculosis, the negative chest x-ray would be of little help and may, in fact, be misleading. Its importance as an indicator of the presence or absence of tuberculosis is aptly illustrated by the cases presented. In all cases, tuberculosis was probably excluded from consideration on the basis of the negative chest film. In Case 3, it was not seriously considered until pleural effusion developed and was confirmed on the chest film.

The inoculation of suspected material into guinea pigs for eventual recovery of mycobacteria has been shown to be a useful means of diagnosis, in some instances giving positive results while the culture remains negative.[4] Unfortunately, most small institutions lack facilities to care for these animals, a condition which renders the procedure impractical except under special circumstances.

The diagnosis of tuberculosis in patients without overt pulmonary involvement can therefore present a difficult problem. It will usually rest on the examination of material obtained by biopsy or of surgically excised organs. Of prime importance is the culture. A positive culture not only confirms the diagnosis, but valuable sensitivity studies can be performed if a resistant organism is encountered. In addition, it differentiates between *M. tuberculosis* and mycobacteria other than tuberculosis which pose different problems in management. Further, these and other studies may be important in epidemiologic surveys of tuberculosis. If tuberculosis is unsuspected, the opportunity to culture the organism may be lost, as occurred in three of the five patients presented.

While the morphologic demonstration of acid-fast bacilli in granulomas can be taken as evidence of active tuberculosis, it obviously does not have the advantages that re-

covery of the organism has. In some cases, it may be exceedingly difficult or impossible to demonstrate the organism even when the culture is known to be positive as shown in Case 1. In cases where cultures are not obtained and the organism cannot be demonstrated, one may have to be satisfied with a presumptive diagnosis of tuberculosis if the tuberculin test is strongly positive. The decision to institute chemotherapy on the basis of a presumed rather than a proved diagnosis may be a difficult one to make.

It is apparent that the most important point in confirming the diagnosis of tuberculosis is an awareness that it might be present so that appropriate studies can be initiated. If tuberculosis is borne in mind in the differential diagnosis of any unexplained illness, it will rarely be overlooked.

Summary

The number of patients in this study is too small and cases too varied to warrant any general conclusions. However, several points regarding the current diagnosis of tuberculosis can be made. While the incidence of this disease has declined considerably, many patients are still admitted into general hospitals with undiagnosed tuberculosis. In a significant number (31 per cent in this study), the initial clinical manifestation is extrapulmonary. A negative chest film in such a patient may be misleading, and the tuberculin skin test, if done, may be of little help. The diagnosis is usually made by examination of surgically excised material and is often problematic because the disease is unsuspected and appropriate bacteriologic studies not made. Five cases are presented to illustrate some difficulties in diagnosis. The clinical variations of tuberculosis are so great that it must be considered a possibility in any nontraumatic illness in which the diagnosis is not readily apparent, even in the absence of overt pulmonary disease. •

ACKNOWLEDGMENT

The authors acknowledge the technical assistance of Mr. Charles McDaniel, BS, MT (ASCP), who performed the bacteriologic studies.

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ERRATA

Because of an oversight in proofreading, the editorial office wishes to apologize to Dr. Robert D. Knudson for an error that appeared in his article "Drowning and Near-Drowning" on pages 67-68 of the September 1972 issue. The second sentence under Emergency Treatment should read, "Several lung inflations are needed to prevent possible irreversible changes."

Publication rules and suggestions to authors

1. Who may submit articles. The Rocky Mountain Medical Journal ordinarily accepts only articles prepared by members of the state societies we serve and by guest speakers at their official meetings.

2. Method of preparation. All material for publication must be typewritten, double spaced, with liberal margins, using only one side of the paper, pages consecutively numbered, and preferably on standard 8½ x 11 white bond paper. Carbon copies are *not* acceptable.

Title (preferably short) and author's name, city and state must appear at the top of the first page. Second and subsequent pages should be identified with consecutive page numbers and author's surname. If physician authors possess more than one degree, the MD only is used. Lesser degrees of non-MD authors or co-authors may be used.

Please include beneath the title or at the top of the first page a brief paragraph stating what the article is designed to show and, therefore, why it should be read. This introductory feature is, in editorial parlance, called the "blurb"; it is printed in bold type.

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12. Editorials. We would like to have more submitted by our State editors and the membership at large. Readers must get tired of thunder from publication headquarters in Denver; frankly, we do too! Speak out, and we'll sign your name, initials, or respect your request for anonymity, as you choose. If you don't like something we do or say, please let us in on it; we could even stand to hear about it if something happens to please you. A "Letter to the Editor" may help you get something off your mind. We're asking for it and we have a place to put it—in the Journal, that is!

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Projections for better immunization practices

As Indicated by a Recent State-Wide Immunization Survey

Cecil S. Mollohan, MD, Denver, and
Henry B. Strenge, MD, Boulder, Colorado*

COLORADO GRADE SCHOOL children, as revealed by a recent state-wide immunization survey, are more than 20 points below an "epidemic-safe" protection level for measles. The youngsters are, in fact, better protected against smallpox. Measles vaccine has been available since 1963. However, smallpox vaccinations (long considered a dubious risk by the medical profession) have been conscientiously administered until early this fall when the Surgeon General's statement advising against routine smallpox vaccination was published. The smallpox scar had become a part of growing up. It's unfortunate that immunizations to prevent measles and rubella — currently the Number One cripplers in childhood diseases — have not achieved the same enviable status.

Sponsored jointly by the Departments of Health and Education, the Colorado immunization index was based on an 84 per cent response from parents of children in grades kindergarten through sixth in all public, private, and parochial schools. Protection was most adequate against polio — 87.8 per cent (goal: 80 per cent); good against diphtheria-tetanus — 82.3 per cent (goal: 80 per cent); 77.3 per cent for smallpox but deficient against measles — 74.3 per cent (goal: 95 per cent) and rubella — 78.9 per cent (goal: 90 per cent). It is obvious from the statistics that weaknesses in health delivery systems exist on even something so simple as a shot. Apparently, traditional approaches are not working, or aren't working enough.

The medical profession stands in the front line for properly educating parents on the ever-present need for adequate immunization of their child. Further, physicians are responsible to the patient for his health care.

Results of the Colorado survey indicate that new approaches in immunization delivery are in order. Serious considerations must be given to the following revisions in practice:

(1) Much could be accomplished if nurses in private physicians' offices were given standing orders to follow through on routine, recommended immunizations. A quick review of the chart for up-to-date immunization by the nurse, any time a child makes an office visit, needs to become automatic and standard practice. Commercial "flagging" systems for use on chart covers are available and should be utilized.

(2) Conscientiously reducing costs of administering vaccine would expand the herd immunity "circle of protection" considerably. It must be noted that even parents in middle income categories are indigent when it comes to medical care for several children. Vaccines and toxoids are available to private physicians without charge upon application to the State Health Department. Offering and promoting a low-cost "immunization package" for the child enables the physician to work more closely with patient and parents in regard to total preventive care.

(3) Physicians need to take time to "sell" immunizations and their efficacy during an office visit, be it for routine or crisis care. In editing the nearly 275,000 forms returned in the Colorado immunization survey, it became apparent that, in many instances, physicians were merely responding to parents'

*Dr. Mollohan is Chief, Epidemiology Section, Colorado Department of Health, Denver, and Dr. Strenge is Chairman, Committee on Infectious Diseases, Colorado Medical Society, Boulder, Colorado.

demands for disease protection — rather than leading the way toward modern, current immunization practices.

(4) In many cases, mildly sick children or youngsters who come to the office for a gamut of other reasons (broken legs, allergy checks, non-viral infections, etc.) can be candidates for immunization. Certainly the common cold (without fever) is no contraindication to any immunization. Review of a child's immunization status should be constant. Certainly with low-income "crisis-oriented" families, as well as with all children visiting a physician's office, the concept of "shooting them when you see them" must be more universally applied.

(5) Administration of several live vaccines at once is now acceptable according to latest research. Polio, measles, and rubella vaccines can now be administered concurrently.

(6) A marked change in overall professional attitude toward immunization from apathy to interest is vitally necessary. Ongoing health education needs to be uppermost in the minds of the office staff as they interface with the public. This attitude requires continual reinforcement on the physician's part.

(7) Outside the physician's office, some other better immunization practices must be brought into play. (A) Compulsory immunization laws, with schools, preschools, and day-care centers as the "captive audiences" for delivery, should be considered as another method of achieving goals. The physician should assume a leading role in assuring universal availability of immunization services. (B) Immunization clinics must be designed to run during hours when the public has the time to come, whether or not it may be an unusual time for doctors or nurses to work. (C) Taking immunization facilities to the people — utilizing a mobile van in neighborhood vacant lots, at shopping centers, next to a drive-in bank, etc. — would do much to offer more direct, convenient service as well as support the prime goal, namely, appropriate immunization of all susceptibles.

Summary

We are at a point where the private physician sector and public health departments should shed seemingly mutual distrust and join forces to solve the ever-present problem of health services delivery. Too long, these two camps of health professionals have condemned each other when, in reality, both are striving toward the same end — the protection of children through immunization and the prevention of all communicable diseases. The new approaches in immunization delivery outlined above deserve the attention of every physician. •

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A medical potpourri

Compiled by Andrew M. Babey, MD, Las Cruces, New Mexico

1. "When the anemia is mild, or in iron deficiency without anemia, the morphologic diagnosis often cannot be made with assurance. Diagnostic errors then are common, of both the false-positive and false-negative types. Furthermore, beta-thalassemia minor anemia, chronic inflammatory disorders and malignancy are all common disorders that cause morphologic changes in erythrocytes that are indistinguishable from those of iron deficiency anemia. Sideroblastic anemias, too, commonly mimic iron deficiency anemia, and these disorders are by no means rare." Editorial, *Annals of Internal Medicine,* October 1971, p. 640.

2. ". . . I will not labour my own conviction that the normal state of most people is to feel faintly tired, harassed, and under the weather—and that my clinical observations lead me to believe that an abounding sensation of positive health usually presages either a cardiac infarction or incipient hypomania. The fact remains that the concept of positive health is as popular with some apostles of preventive medicine as with lay journalists. It postulates a state that could apparently be achieved by the careful observation of a set of rules that vary with the writer, but which are always inconvenient and uncomfortable and usually eccentric. I question the whole concept of positive health and the validity of the prescription claimed to ensure it." Miller, Henry: "Medical History and Medical Care". *Lancet,* November 13, 1971, p. 1049.

3. ". . . there are no tests for hypercoagulability, and clinical evidence of thrombosis or laboratory evidence of disseminated intravascular thrombosis is the best evidence that hypercoagulability exists." Bennington, James L., Fouty, Robert A., Hougie, Cecil: *Laboratory Diagnosis.* Macmillan Company, 1970, p. 543.

4. "It has been repeatedly demonstrated that about one out of ten patients who have a positive cervical smear will turn out *not* to have a carcinoma. That is, the accuracy of a positive diagnosis is or should be approximately 90 per cent." *Ibid.,* p. 559.

5. "Carcinoma of the Lung—In most laboratories, a positive cytologic diagnosis proves to be correct in more than 80 to 85 per cent of cases. It is all too common to have a positive cytologic diagnosis followed by three or four repeat smears, whereas the patient with a negative cytologic examination frequently does not have repeat smears. The situation should be reversed. If there is any indication for doing pulmonary cytology in the first place, a negative report should be followed by one and preferably two or three examinations, whereas there is little to be gained by repeating positive cytologic examinations." *Ibid.,* p. 563.

6. "The satisfactory cytologic examination depends upon the specimen being obtained from deep in the lung and being absolutely fresh. Material held for more than half an hour is not as valuable as sputum taken directly to the laboratory and processed immediately; sputum unfixed and untested for 24 hours after collection is essentially worthless." *Ibid.,* p. 564.

7. "The opposition is indispensable. A good statesman, like any other sensible human being, always learns more from his opponents than from his fervent supporters. For his supporters will push him to disaster unless his opponents show him where the dangers are. So if he is wise he will often pray to be delivered from his friends, because they will ruin him. But, though it hurts, he ought also to pray never to be left without opponents; for they keep him on the path of reason and good sense.

The national unity of a free people depends upon a sufficiently even balance of political power to make it impracticable for the administration to be arbitrary and for the opposition to be revolutionary and irreconcilable. Where that balance no longer exists, democracy perishes. For unless all the citizens of a state are forced by circumstances to compromise, unless they feel that they can affect policy but that no one can wholly dominate it, unless by habit and necessity they have to give

and take, freedom cannot be maintained." Lippmann, Walter: "The Indispensable Opposition". *Atlantic Monthly,* 1939.

8. "*No Evidence of Abnormal Bleeding.* This situation often occurs in relationship to 'routine' presurgical evaluation. Adequate historical information is critical in respect to (1) associated disease (e.g., hepatic or renal dysfunction, malignancy), (2) previous hemostatic response to injury or surgery, (3) bleeding manifestations (e.g., epistaxis, menorrhagia), and (4) familial history of abnormal bleeding. Unless other studies are suggested by the history, evaluation of platelets on the blood film and a PTT are sufficient laboratory screens. The widespread practice of a preoperative bleeding and clotting time cannot be too severely condemned; both are insensitive to the majority of hemostatic defects and provide false assurance that hemostasis is normal." Hardy, W. R., Saiki, J. H., Simon, E. R., and Troup, G. M.: *Hematology Syllabus.* University of New Mexico School of Medicine, 1970, p. 26.

9. "No patient with proved acute myocardial infarction is a 'good risk' since in all a catastrophic arrhythmia such as ventricular fibrillation may develop." Killip, Thomas: "Management of Arrhythmias in Acute Myocardial Infarction." *Hospital Practice,* April 1972, p. 134.

10. "One of the lessons learned from coronary care has been the importance of primary ventricular fibrillation. It can and does occur in well-compensated patients who have not previously had significant arrhythmia. In effect, any arrhythmia may occur in any patient with acute myocardial infarction, although the more ventricular function is compromised the more likely is the chance of life-threatening arrhythmia developing." *Ibid.,* p. 134.

11. "Because the toxicity of digitalis may be significantly enhanced in the acute postinfarction period, standard doses may prove excessive. Our policy is to use no more than 70 per cent of the calculated digitalizing dose for the first 48 hours or so while this effect is at its peak." *Ibid.,* p. 134.

12. "It should be recognized that when marked sinus slowing occurs in the absence of an adequate nodal or junctional escape rhythm two pacemaker sites are malfunctioning; the sinus node and the AV node, or junctional region." *Ibid.,* p. 134.

13. "However, sinus bradycardia per se is not innocuous and should be recognized as a serious threat in its own right. Most patients with acquired heart disease who develop sinus bradycardia have a fixed cardiac output and a relatively fixed stroke volume; they are unable to adjust the ejection fraction as the heart rate changes. Once the heart rate drops to about 60 or thereabouts, a steady decline in cardiac output can be anticipated, particularly in an elderly individual. Unless the ventricular rate is raised hemodynamic problems can only increase." *Ibid.,* p. 134.

14. "Atropine (in a dose of 0.6 to 0.8 mg IV) is useful in the management of sinus bradycardia. If necessary the injection is repeated once or at most twice. Atropine is a relatively safe drug, but its use is best limited. Some degree of urinary retention is virtually inevitable, nor can the possibility of central nervous system effects and glaucoma be dismissed." *Ibid.,* p. 135.

15. "Infusion of isoproterenol is also useful in management of bradycardia. The infusion rate must be precisely controlled, however, since the drug may cause sinus tachycardia or atrial or ventricular arrhythmias. In weighing the alternatives, it has seemed to us that temporary intracardiac pacing is the preferred approach for persistent or recurrent sinus bradycardia. Some other groups favor a longer trial of drug therapy, but we have come to feel that in experienced hands, pacing entails less risk. We turn to it promptly if one or two injections of atropine do not have the desired effect, or use it as primary therapy if sinus node dysfunction is associated with progressive cardiac decompensation." *Ibid.,* p. 135.

16. "Recent studies have documented that mortality in acute MI is substantially increased—often approaching 50 per cent—in the presence of bundle branch block. Insertion of an intracardiac pacing electrode as a routine has been strongly urged to prevent progression to a lethal arrhythmia. Unfortunately, it is difficult to prove that this approach improves mortality." *Ibid.,* p. 136.

17. "Yet who reads to bring about an end however desirable? Are there not some pursuits that we practise because they are good in themselves, and some pleasures that are final? And is not this among them? I have sometimes dreamt, at least, that when the Day of Judgement dawns and the great conquerors and lawyers and statesmen come to receive their rewards—their crowns, their laurels, their names carved indelibly upon imperishable marble—the Almighty will turn to Peter and will say, not without a certain envy when He sees us coming with our books under our arms, 'Look, these need no reward. We have nothing to give them here. They have loved reading'." Woolf, Virginia: "How Should One Read a Book?", *Great Essays* (Edited by Houston Peterson). New York: Washington Square Press, Jan. 1961, p. 384.

18. "For years I have felt a great need for our getting rid of the laws against suicide and also for removing the stigma or shame now attached to suicide." Alvarez, Walter, MD: "Medical Meditation". *Modern Medicine,* May 29, 1972, p. 119.

Colorado Heart Association's school culture program*

Report on the 1970-1971 pilot study

Ham Jackson, MD, Fort Morgan, and Pat Freeburg, Sterling, Colorado

THE STATE-WIDE STREPTOCOCCUS Culture Service of the Colorado Department of Public Health is widely recognized as the most comprehensive clinically oriented program in existence.[1] There is no finer example of what can be accomplished by the cooperative efforts of the Heart Association, the health departments, numerous other agencies, and individuals. The result of this program has ben a dramatic reduction in the incidence of rheumatic fever and glomerulonephritis.

One method of improving the results might be to incorporate a school-centered program such as the classic one in Casper.[4,5] However, there is a question whether or not a program with the intensity of the Casper project can be applied on a state-wide basis, and especially in large school populations. Therefore, a research project was initiated in the fall of 1970 to evaluate the feasibility and effectiveness of a less intense school-oriented project as an adjunct to the existing culture program.

Procedure

The project was presented in detail to school officials, the Medical Society, and the health department, and cooperation by each was assured. Grade school pupils in Morgan County were divided into three groups of about 1,000 each (Table 1). One group was cultured only twice during the school year, one was cultured each ten weeks, and one group had a daily culture program for symptomatic children plus a ten per cent sample of the students each week. Pharyngeal swabs were taken by volunteer mothers trained and supervised by the school nurses. The specimens were processed using the health department laboratory and Colorado's already well established Cul Pak mail-in system.[6,7] The all-school cultures done every ten weeks and twice a year were taken by a team of mothers and nurses and required approximately two hours per school. In the schools on the daily culture schedule, each morning the teachers sent children who admitted to having a sore throat or respiratory symptoms to the

TABLE 1

DISTRIBUTION OF CHILDREN IN THE STUDY GROUPS

To be cultured fall and spring	
Sherman (No kindergarten)	405
Columbine	504
	909
To be cultured every 10 weeks	
Green Acres	531
Wiggins and Weldona	441
	972
To be cultured on a daily surveillance	
Brush Schools	890
Baker (Includes 4 kindergarten classes)	469
	1359

*This project was supported by grants from the Colorado Heart Association, Colorado-Wyoming Regional Medical Program, the Williams Foundation, the Bloedom Foundation, and the Northeast Colorado Health Department.

nurse's office where they were cultured by one of the volunteer mothers who came each morning. Once each week approximately ten per cent of the students from each classroom were cultured regardless of whether or not they had symptoms. These students were selected by taking them in order from the class roll. Records were maintained to be sure each student was cultured at least once each ten weeks.

Reports of positive cultures were phoned to the appropriate doctor's office and to the school where a form letter informing the parents was given to the student. Usually the parents were also contacted by the physician's office. Treatment was left to the discretion of the physician and the family. Students were not excluded from school and usually no attempt was made to determine what, if any, therapy had been obtained. However, by mid-school year it had become apparent that a few families were not obtaining treatment. This was understandably very distressing to the volunteers working in the program, so in about six cases the school nurse became involved with family education and in two situations helped them to obtain treatment.

Results

The culture results are summarized in Tables 2 and 3. The streptococcal prevalence rate in Morgan County was well above the usual Colorado prevalence[4] at the start of the project but rapidly fell well below the standard. However, this occurred in all groups including the control schools which at the end of the year had a prevalence rate nearly as low as the schools with the most intense program.

Health department statistics (Table 4) show a greater decrease in the per cent positive cultures from Morgan County than from neighboring counties. Especially note Logan which is the county most comparable to Morgan. These figures seem to indicate the program may have been effective but the presence of multiple other factors, especially the variation in clinical culture rates, make it necessary to interpret this data with caution (Table 5).

Attendance records of all the schools for the past three years were reviewed, and there did not appear to be any correlation between the absentee rate and the culture group the school was in. The volunteer mothers rapidly became very proficient in doing pharyngeal cultures, dealing with the children, and keeping records. In the schools with the daily culture schedule, the average volunteer time actually spent in the school was seven and one-half hours per week (usually two women for three and three-quarters hours each). However, the listing of hours at the school does not measure the extent of the volunteers' efforts because it takes considerable dedication for a busy mother to manage to get to school early each morning.

The aggravation of classroom interruption was found to be minimal because most

TABLE 2
ALL SCHOOL SURVEYS
1970—1971

	OCTOBER			DECEMBER			FEBRUARY			APRIL		
Every 10 Wks.	Cul.	Pos.	Per Cent	Cul.	Pos.	Per Cent	Cul.	Pos.	Per Cent	Cul.	Pos.	Per Cent
Wiggins-Weldona	411	81	20	408	77	19	402	99	11	458	103	22.6
Green Acres	515	185	36	520	78	15	528	56	34	521	29	5.6
TOTAL	926	266	22.8	928	155	16.8	930	155	16.7	979	132	13.5
Twice a Year												
Columbine	490	154	31.4							477	52	10.8
Sherman	386	105	27.1							379	44	11.6
TOTAL	876	259	29.5							856	96	11.2

of the culturing was completed before actual class work started. The burden on school administrative personnel was small and was balanced by the unanticipated value of having a volunteer in the nurse's office each morning to aid and comfort the early morning sick, or possibly sick children, a job usually done by the principal or secretary.

The per cent of positive cultures was consistently greater from the children in the ten per cent sample taken each week than from the symptomatic children. However, inspection of the throat was not part of the protocol and all children who stated they had a sore throat were cultured. The volunteers quickly became aware that some children are willing to submit to repeated pharyngeal swabbing for secondary gains. These children seemed to fall into three groups: budding hypochondriacs, children needing all the attention they can get, and those who would do almost anything to get out of class.

Comment

Although few in number, the children who failed to obtain treatment were a source of great distress to teachers and volunteers, who felt they were at least partially responsible for the less than dramatic results of the program. The workers in this project were universally agreed that some forms of mandatory exclusion must be available to invoke for the few problem cases. The cause of noncompliance appeared to be threefold: lack of understanding, poor family motivations, and financial problems. Usually

TABLE 3
WEEKLY SUMMARIES OF
SCHOOLS ON DAILY SURVEILLANCE

	SYMPTOMATIC CULTURES			10 PER CENT SAMPLE		
Week Starting	Cultured	Positive	Per Cent	Cultured	Positive	Per Cent
10/12	77	12.3	16	211	39	18.5
10/19	124	18	14.5	218	41	18.9
10/26	140	16.3	11.6	118	18	15.2
11/2	176	16	9.1	143	20	14
11/9	165	10.6	6.4	166	19.3	11.6
11/16	192	12	6.3	156	18.3	11.7
11/23	179	16	8.9	144	20	13.9
11/30	181	26	14.4	133	21.6	16.2
12/7	186	29	15.6	107	20.3	19
12/14	179	27.6	15.4	87	19	21.8
12/21	142	18.3	12.9			
1/3	136	17	12.5			
1/11	139	15.3	11	164	31.5	19.2
1/18	173	18.3	10.6	162	29.6	18.3
1/25	163	16.6	10.2	161	27.6	17.2
2/1	148	15.3	10.3	153	25.6	16.7
2/7	147	18	12.2	152	25.6	16.9
2/15	154	17	11	148	23.6	16
2/22	169	18	10.6	114	17.3	15.2
3/1	168	15.6	9.3	102	13.6	13.3
3/8	172	9	5.2	90	9.3	10.3
3/15	175	7.6	4.3	108	8	7.4
3/22	164	6.3	3.8	120	7	5.8
3/29	135	6.6	4.9	142	8.3	5.8
4/5	115	5.6	4.8	164	7.6	4.6
4/12	96	6	6.3	227	16	7.1
4/19	91	7	7.7	227	19	8.4
4/26	66	5.6	8.5	218	19	8.7

NOTE: To better demonstrate trends the figures have been smoothed by averaging. For each week the number cultured and the number positive represent the average of this figure for the week indicated along with the week immediately before and after. The per cents are derived using the smoothed numbers.

TABLE 4
NORTHEAST COLORADO HEALTH DEPARTMENT
SCHOOL SURVEILLANCE 1970-1971
PER CENT OF CULTURES POSITIVE FOR GROUP A STREPTOCOCCI

GROUP A STREPTOCOCCAL INCIDENCE	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	CHANGE FROM OCT. TO APR.
I. Morgan County								
School Cultures								
Control Schools	28.4						11.2	−17.2
10 Week Schools	27.1		16.5		21.8		13.4	−13.7
Daily Symptomatic	30.3	8.2	15.5	8.7	10.5	6.3	6.7	−23.6
10% Random Sample	19.2	12.6	14.3	17.1	16.2	5.8	7.5	−11.7
School Age Clinical Cultures	25.0	24.7	20.1	25.2	24.1	16.4	14.8	−10.2
Other Clinical Cultures	12.8	9.3	12.5	11.0	9.6	5.6	7.5	− 5.3
II. Other Counties*								
School Age Clinical Cultures								
Logan	21.5	12.2	21.0	24.0	21.5	19.3	18.7	− 2.8
Phillips	14.4	3.3	8.0	27.2	15.2	20.7	21.0	+ 6.6
Sedgwick	21.0	4.9	21.0	25.6	20.5	12.6	7.4	−13.6
Yuma	32.0†	27.6	15.0	16.4	24.1	12.0	8.5	−23.5
Other Clinical Cultures	16.5	7.4	9.8	11.5	10.2	9.1	7.8	− 8.7

*See accompanying chart for population and culture rate comparisons.
†Because of this high percentage positive in clinical cultures, an all school culture was done and positives treated.

all three factors were involved together. The schools are unwilling to assume the administrative burden of requiring all children to bring treatment verification slips, and it is probably unnecessary because the teachers appeared to perceive rapidly which children did not obtain treatment. Since the problem cases appear to be easily identifiable and few in number, they probably could be handled individually by the school nurse who usually would be able to resolve the obstacles to treatment by working with the student, teacher, family, and physician. With this approach, forced exclusion would rarely, if ever, be needed, but the school nurse certainly has the authority to exclude children with known contagious disease.

A related problem was the occasional child with a persistent positive culture in spite of adequate therapy. This was usually due to a noninfectious carrier state[8] of which the family was aware, and which was being monitored properly. In cases of doubt, the nurse consulted with the family and the physician concerned.

By culturing daily instead of once or twice a week, the results of swabs taken from

TABLE 5
NORTHEAST COLORADO HEALTH DEPARTMENT
1970 STREPTOCOCCAL CULTURE RATE BY COUNTIES

County	Population	Total Cultures*	Cultures/1,000 Pop.	Change in %† Positive 10/1/70—4/20/71
Morgan	20,105	15,396	765	−10.2
Logan	18,852	4,345	230	− 2.8
Phillips	4,131	968	234	+ 6.6
Sedgwick	3,405	2,120	621	−13.6
Yuma	8,544	3,768	440	−23.5

*Does not include school programs and surveys.
†Includes only school age children. For further details, see Table 4.

some of the symptomatic children are returned 24 to 72 hours earlier; however, since the data indicates that the symptomatic children do not represent the bulk of streptococcal infection in the school, it seems unlikely that these more rapid results would make any significant difference in the overall program. As far as the individual children are concerned, it has been shown that much longer delays are usually not clinically important.[9]

Culturing only once or twice a week would not only reduce the burden on the volunteer mothers, but also by batching the cultures, it would reduce the clerical work load for the laboratory, and for the secretaries phoning and receiving results. Less frequent classroom interruption would also be a benefit. In spite of repeated explanations that we should use our limited funds to culture the high-yield group, there was consistent pressure for including classroom teachers on the same basis as their students. The assurance of continued teacher interest and cooperation would be well worth the few additional cultures required to include them. In a few cases, sick children were sent to school "so they could get a culture", and there was some pressure for culturing older siblings and family contacts but these items were not a big problem. However, it should be repeatedly emphasized that the schools do not want to get into the business of providing medical care and do not want sick children to come to school.

Inspection of the children for signs of streptococcal infection was not included in the 1970-1971 protocol, and in retrospect there are several compelling reasons why it should have been. The clinical significance and the degree to contagiousness of streptococcal infection is related to the presence of pharyngeal exudate and cervical adenitis.[8,10] Conversely, infections without these signs have a reduced clinical significance and are not appreciably contagious.[10] Thus by incorporating inspection and these criteria, we could utilize the available cultures on the most significant group. In addition young children with obvious signs of significant infection are often apparently asymptomatic[4] and thus are usually missed in a program relying heavily on symptoms as criteria for culturing. Conversely, the problem of children seeking cultures for secondary gains clearly shows the need for criteria in addition to claims of symptoms as an indication for culturing.

Also, in retrospect, culturing the control schools only twice was really no control at all since there was a rather high possibility of hitting by coincidence a week with a particularly high or particularly low prevalence. The data presented indicates that in the 1970-1971 school year this was indeed the case.

Conclusion

Although the reported results of the school streptococcal program are inconclusive, the program has been a very useful pilot study. The experience gained can be used to develop the protocol for a more definitive study to illuminate this important subject. •

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Changing patterns in hospital-associated microorganisms*

Stuart G. Dunlop, PhD, and Sandra A. Guenette, MS,
Denver, Colorado*

Although initially hospital-associated infections were mainly staphylococci, recent surveillance studies show that the proportion of Gram-negative organisms to Gram-positive organisms with these infections has been reversed.

DURING THE LATTER PART of the 1950's an increase in the number of staphylococcal infections occurring among hospital patients after admission was noted not only all over this country but over most of the world. In recognition of this problem, the U. S. Public Health Service Communicable Disease Center and the National Academy of Sciences National Research Council jointly sponsored a national conference on hospital acquired staphylococcal disease, which was held in Atlanta, Georgia in September 1958. Its purpose was to review what was known about these infections, to discover areas that required additional investigation, and to plan a practical attack on the problem. Among the recommendations emerging from this conference was that an infection committee be established in each hospital as a sound approach in the recognition, prevention, and control of hospital acquired staphylococcal disease.[1]

Colorado General and Colorado Psychiatric Hospitals already had such a functioning committee, called the Hospital Epidemiology Committee. At that time the members of this committee recognized that not only was the reporting of these infections poor, but that data concerning the responsible organisms were not adequate. Accordingly the committee devised and adopted a report form required on a weekly basis from each ward in the two hospitals. This report form included not only pertinent patient information but also information as to whether the infection was present on admission, post-admission or post-operatively, and the type of disease and organism, or organisms, cultured by the laboratory.

Although this system was an improvement over previous programs, in 1966 the committee decided that a full-time Infection Control Coordinator was essential, not only to improve the amount of reporting but also to verify the accuracy of the reports. Responsibility for initiating the report of all infections and infectious diseases remained with the Nursing Service as it had previously, but the details of each infection were assumed by the Infection Control Coordinator. Daily review of the nurses' floor census sheets, report slips from the laboratory, review of patients' charts while on the wards, autopsy reports, and orientation discussions with all new nursing personnel and House Staff, all done by the Infection Control Coordinator, have resulted not only in much better and more valid reporting but in addition have provided daily surveillance of all infections and infectious diseases in the hospitals.

It is the purpose of this report to describe the changing patterns in the types of microorganisms associated with post-admission infections in the two hospitals. Two periods of 12 months each were chosen for comparison, as the data from each of these periods appeared to be the most complete. The periods sampled were July 1, 1961 to June 30, 1962 and January 2, 1969 to January 1, 1970.

Dr. Dunlop is Professor of Microbiology and Miss Guenette is Instructor in Preventive Medicine, University of Colorado Medical Center, Denver, Colorado. He is also a member of the Weekly Health Column and Health Articles Committee of the Colorado Medical Society.

TABLE 1

CHANGING PROPORTIONS OF GRAM-POS. AND GRAM-NEG. ORGANISMS IN HOSPITAL-ASSOCIATED INFECTIONS

Period Sampled	No. of Patients	No. of Organisms	Percent of Organisms Gram Pos.	Gram Neg.
July 1, 1961 to June 30, 1962	115	157	64	36
January 2, 1969 to January 1, 1970	182	265	28	72

Results

Table 1 shows the number of patients having post-admission infections with Gram-positive and/or Gram-negative organisms, the number of organisms isolated from these patients, and a comparison of the per cent of Gram-positive and Gram-negative organisms isolated from these infections in both periods. Many of the patients had more than one organism involved; but the proportions of Gram-positive and Gram-negative organisms cultured were reversed from the first period to the second period. In the 1961-62 period 64 per cent of the organisms cultured were Gram-positive and 36 per cent were Gram-negative. In 1969 only 28 per cent were Gram-positive and 72 per cent were Gram-negative. This change is shown even more dramatically in Fig. 1. The types and numbers of organisms isolated in these two periods are shown in Table 2. Among the Gram-positive organisms staphylococci still account for a considerable number of post-admission infections, and have continued to do so throughout 1970 and 1971; however, these are completely overshadowed by the cumulative numbers of *E. coli*, proteus, enterobacter, klebsiella, pseudomonas, and serratia. It should be pointed out that the increase in the number of patients and the number of organisms involved in the 1969 period do not reflect an increase in the per cent of hospital-associated infections, this figure having remained at approximately two per cent during both periods sampled. Rather, it is a reflection of an increase in the number of hospital beds and also in a greater turnover of patients in the more recent period.

Discussion

Studies in other hospitals have indicated a similar trend toward an increase of Gram-negative bacterial infections.[2,3,4,5,6] What are the possible explanations for these changing patterns of microorganisms isolated from hospital-associated infections? Any or all of the following may be involved, as indicated in the review by Feingold:[7]

TABLE 2

TYPES AND NUMBERS OF ORGANISMS ISOLATED FROM HOSPITAL-ASSOCIATED INFECTIONS

Organisms	Periods Sampled 7/1/61—6/30/62	1/2/69—1/1/70
Staphylococci	59	53
Beta-hem. Streptococci	9	6
Pneumococci	16	0
Strep. viridans	5	3
Enterococci	7	0
Non-hem. Streptococci	3	11
Clostridia	1	1
Subtotals	100	74
E. coli	22	52
Proteus	10	14
Enterobacter	0	18
Klebsiella	0	70
Pseudomonas	12	24
Paracolons	6	0
Serratia	0	7
Bacteroides	1	2
Alcaligenes	1	0
Shigella	4	0
Hemophilus	1	1
Citrobacter	0	2
Salmonella	0	1
Subtotals	57	191
TOTALS	157	265

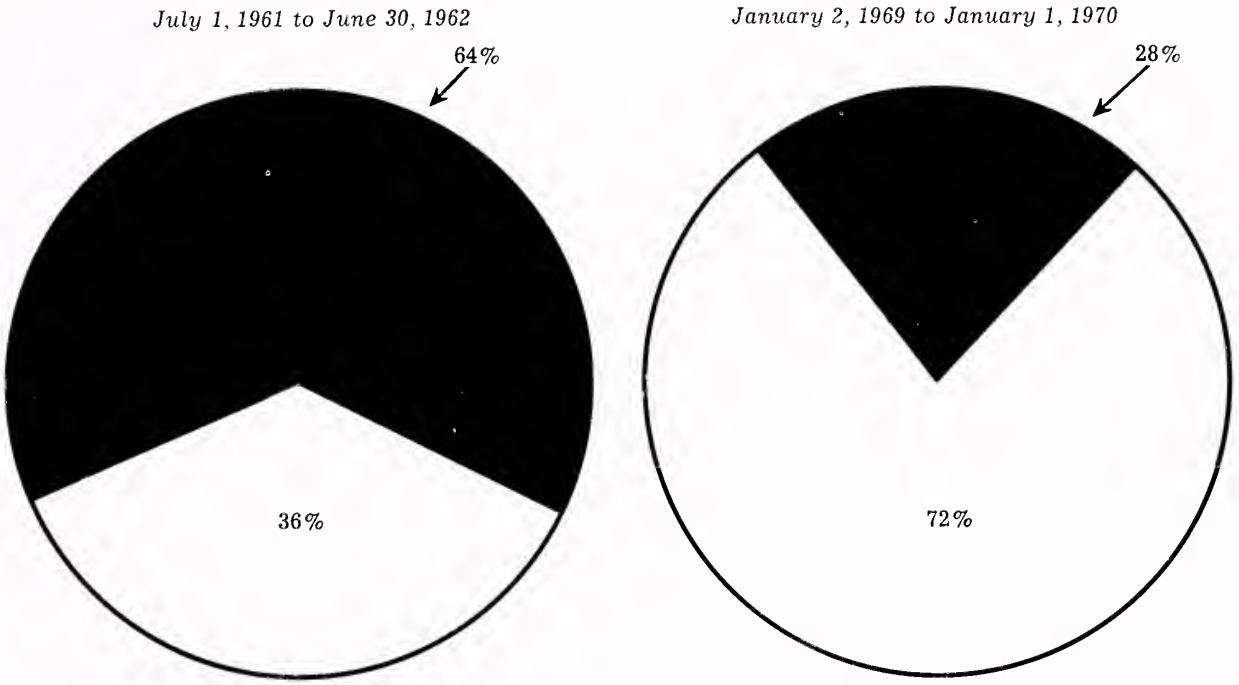

Fig. 1. Proportions of Gram-positive and Gram-negative organisms isolated during two periods. Shaded areas represent Gram-positive organisms.

(1) The hospital population is changing toward a greater proportion of the very young, such as prematures, and the very old, many with chronic underlying disease and debilitation. These patients are prime risks for infection while in the hospital. This statement is supported by a study made by Johanson, Pierce and Sanford in Texas[8] who found that the appearance of a Gram-negative flora in their patients correlated best with the clinical impression of the degree of illness.

(2) More instrumentation is being used both in diagnosis and treatment. Examples of this are endoscopy of various kinds, catheterization, supportive respiratory therapy, and intravenous administration of fluids and antibiotics as well as other medicines.

(3) Longer and more complicated operative procedures expose the patient to greater possibility of infection from both exogenous and endogenous sources.

(4) The greater use of steroids and other immuno-suppressive drugs decreases the resistance of the host and leaves him more susceptible to organisms commonly thought of as "opportunistic pathogens", that is, organisms which are normal in the host and in the environment, but which may under conditions of lowered resistance, or out of their usual habitat, have the potential to produce infection.

(5) Many of the newer antibiotics are more effective against Gram-positive organisms, such as the penicillin-resistant staphylococci, than against Gram-negatives; and the prompt administration of these antibiotics results in a shorter period of infectivity with Gram-positive microorganisms.

(6) A significantly larger proportion of Gram-negative organisms has become resistant to the antibiotics commonly used against them. The increased prevalence of Gram-negative rods carrying resistance transfer factors has been well documented and is an increasing problem.[9,10]

(7) It is possible that the numerous bacteriostatic agents useful topically and systemically in reducing the number of Gram-positive organisms has resulted in a predominantly Gram-negative flora, both within the host, on his skin, and in the environment.

(8) Water reservoirs in air-conditioning systems, isolettes, nebulizers, and other respiratory care equipment may become contaminated with Gram-negative organisms such as pseudomonas and serratia, thus exposing the unusually susceptible person to airborne infection.

Summary

A comparison of the types of organisms isolated from hospital-associated infections during two widely separated periods at the two hospitals of the University of Colorado Medical Center showed that the proportions of Gram-positive and Gram-negative organisms associated with these infections have been reversed. In the period July 1, 1961 to June 30, 1962, Gram-positive organisms accounted for 64 per cent of these infections and the Gram-negatives 36 per cent. From January 2, 1969 to January 1, 1970, the Gram-positive organisms accounted for only 28 per cent and the Gram-negatives 72 per cent. Possible explanations for these changing patterns of microorganisms are discussed. •

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Hearing deficiency in Pueblo Indian children*

Results of a mass screening program

Dominick F. Rossi, MA, Albuquerque, New Mexico

IT HAS BEEN established that middle ear disease, and specifically otitis media, is endemic among American Indians in specific areas of the United States, and in Alaska Natives. Diseases of the middle ear cleft are typically accompanied by a conductive hearing loss which, if left untreated, may result in an irreversible hearing deficit. Incidence rates for the Southwestern American Indian approximate seven per cent.[1,2] In addition, 60 per cent of reported cases of otitis media occur within the important first four years of life.[3] Thus, the child's education may be seriously impaired, and dependent upon the extent of the hearing loss, chronic middle ear disease may affect the patient's social and psychological adjustment.

To help meet the urgent need for the identification, evaluation, and treatment of otitis media in the Southwestern American Indian, the United States Indian Health Service and the Department of Communicative Disorders of the University of New Mexico have recently initiated the Otitis Media Project. This undertaking employs New Mexico Indians, trained by the Department of Communicative Disorders, to perform audiometric screening in Headstart programs and in elementary and high schools throughout the state. Preliminary findings on nearly 1,000 children and adults have already been collected.[4] These results are in close agreement with incidence rates found in past screening programs.

In addition to audiometric screening, acoustic impedance measurements have been used in the Otitis Media Project for the past year. Acoustic impedance measurements, as they are employed in the project, include three major components. The first is measurement of absolute impedance (Zx), expressed in acoustic ohms. This is a measure of the actual impedance at the eardrum and is used to assess the degree of stiffness of the tympanic cavity. Middle ear conditions such as otosclerosis or otitis media will typically demonstrate high impedance. Conversely, many postoperative conditions as well as extremely flaccid eardrums due to excessive scarring, or dislocation of the ossicular chain, would typically indicate low impedance. One measure of degree of stiffness which relates specifically to the acoustic impedance of the ear is a comparison of the compliance change (in equivalent units of air, expressed in cm^3) which the eardrum exhibits when it is in its most compliant state to when it is in a loaded position, namely when a positive 200mm of water pressure is exerted upon the eardrum.

The second major component investigated is tympanometry, i.e., measurement of eardrum mobility artificially induced by slowly withdrawing pressure upon the eardrum until it reaches its most compliant position. This movement can be easily plotted and can reveal whether peak compliance of the tympanic membrane occurs at a point equivalent to ambient atmospheric pressure in the external auditory canal. If such is not the case, then a retracted drumhead would indicate peak compliance in a negative area of the graph, while a distended eardrum

*From the Department of Communicative Disorders, University of New Mexico.

TABLE 1

HEARING LOSS OF NEW MEXICO INDIAN CHILDREN, AGE 3-11 YEARS

TOTAL SCREENED	NO. FAILED	NO. PASSED	INCONCLUSIVE
504	17 (3.5%) Conductive: 6 (1.2%) Sensorineural: 2 (0.4%) Acoustic trauma: 9 (2%)	454	33 (6%)

would show its compliance peak in a positive position on the graph. Such measurements are objective and require no otoscopy.

The third major component is measurement of intra-aural muscle reflex activity. Since middle ear disease commonly precludes a measurement of an intra-aural muscle reflex, this measurement, known as the acoustic reflex test, can be used effectively to support findings of conductive abnormality.

Methodology

Children screened were residents of several northern and western New Mexico *pueblos* and were enrolled in either a Head-start program or in an elementary day school. There were 504 children, ranging in age from three to 11 years, screened. Pure-tone screening tests were administered to each child at frequencies 500, 1,000, 2,000, 4,000, and 6,000 Hz. Criterion for failure was an air conduction threshold greater than 25dB (ANSI, 1969) for two test frequencies in the same ear. This testing criterion is in general use throughout the State. A standard behavioral response (handraising) was used almost exclusively. In a few instances, children preferred to use a verbal response. Beltone audiometers (Model 10-D) with TDH-39 earphones in MXR/41 cushions, were employed. The audiometers were calibrated prior to the beginning of the screening procedure. The format of the identification program included a second screening given at a later date if the child failed the first screening. After the second screening, a pure-tone threshold test was administered. Acoustic impedance measurements were employed using a Madsen electroacoustic impedance bridge (Model ZO-70). Audiometric testing was performed at the school in a quiet environment. Acoustic impedance measurements were given either at the school or at the Department of Communicative Disorders.

Results

Auditory screening and threshold results with type of loss for 504 Indian children, aged three to 11 years, are summarized in Table 1. Six per cent of the children could not be tested due to lack of any consistent behavioral response. However, this figure is quite low when considering that the majority of the children tested were under six years of age. Unexpectedly, more than double the number of hearing losses found were of an audiometric configuration typical of acoustic trauma. Conductive hearing losses were the second most common deficit.

CASE REPORT

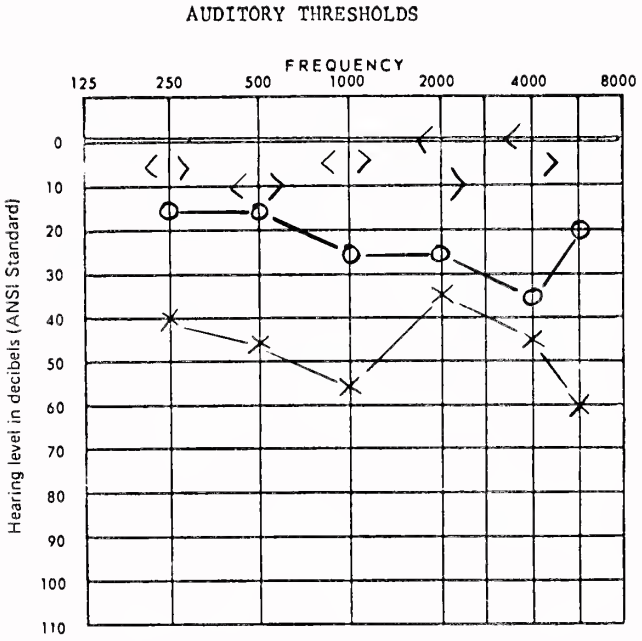
An eight-year-old boy failed the first and second screening and was subsequently seen for a pure-tone threshold test. Following a complete audiometric evaluation, a battery of acoustic impedance measurements was performed. Fig. 1 illustrates audiometric and electroacoustic impedance results obtained. These measurements differ markedly from data collected on 100 normal ears in our university clinic,[5] seen in Table 2.

TABLE 2

NORMAL IMPEDANCE AND COMPLIANCE*

	ACOUSTIC IMPEDANCE (Zx)		COMPLIANCE CHANGE (cm^3)	
	Right Ear	Left Ear	Right Ear	Left Ear
Range	931-2907	926-2898	.35 - 1.10	.36 - 1.08
Mean	1673	1665	.67	.69
Standard Deviation	530	600	.20	.23

*Range, mean and standard deviations for right and left ears for acoustic impedance and compliance change of 100 normal hearing subjects.



	Middle ear Pressure in mm H_2O	Imped. (Zx)	Compliance in cm^3
R	-120	11,500	.09
L	-120	7,115	.15

REFLEX THRESHOLDS

	R	L
250 Hz	NR	NR
500 Hz		
1000 Hz		
2000 Hz		
4000 Hz		
6000 Hz		

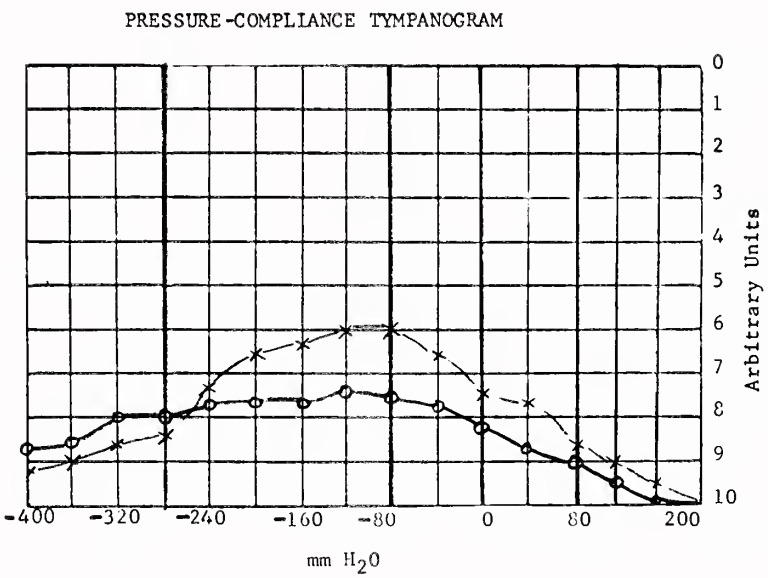


Fig. 1. Audiometric and electroacoustic impedance results.

Acoustic reflexes could not be measured in this boy, in either ear, thus supporting the presence of the bilateral air-bone gap which was obtained during the pure-tone test. Peak pressure-compliance occurred at roughly negative 120 mm H_2O pressure bilaterally. Normally this would occur at or near 0 mm H_2O pressure. Middle ear pressure in this subject, however, falls in the negative region and indicates bilateral retraction of the tympanic membrane.

The acoustic impedance (Zx) at the eardrum is a measure of the degree of stiffness of the entire middle ear system. Both ears reflect an excessive amount of rigidity: 11,500 acoustic ohms for the right ear, and 7,115 acoustic ohms for the left. These values can be compared to a mean impedance of 1,673 ohms for the right ear, and a mean of 1,665 ohms for the left ear obtained in our clinic. Extreme stiffness is also reflected in the amount of compliance change which each ear demonstrated: .09cm^3 for the right ear and .15cm^3 for the left. These compliance values approximate two and one-half to three standard deviations below the mean normal compliance change for right and left ears observed in our clinic.

Discussion

The 504 subjects in this report were screened in little more than two months' time, tested on an average of one day per week. Undergraduate and graduate students in speech pathology and audiology were used as testers. The ease and efficiency of the screening program proved that such large-scale programs are feasible. The results prove that mass screenings, with children tested individually, are vitally needed.

Recently, our clinic has seen an increase in the number of Indian children who exhibit hearing loss typical of acoustic trauma. The author questions whether such noise-related losses may be caused by occupations involving jewelry-making in the Indian population. Without exception, depressed thresholds due to acoustic trauma in this study were identified in boys only. Inquiries at many of the Indian *pueblos* revealed that boys in this age range very frequently accompany their fathers on hunting expeditions and keep very close to their fathers during shooting, although the boys do not do any of the actual firing. One plausible explanation for the high incidence of such hearing losses is that children with histories of middle ear disease may be predisposed to noise-inducing hearing impairment. Shoel[8] states that otitis media itself may cause a sensorineural hearing loss typical of acoustic trauma. Since the incidence of middle ear disease in many Indian subgroups is extremely high, a causal relationship between diseases of the tympanic cavity and acoustic trauma may exist.

One of the primary concerns of the Otitis Media Project has been the earliest possible identification of middle ear disease and concomitant hearing loss in Indian children. Medical psycholinguistic research is slowly filling in the gaps in our knowledge about the effects of congenital or pre-verbal mild to moderate hearing impairment on language acquisition and development.[9,10] Further investigation is needed, not only because of the implications for language growth, but because of a possible relationship between a high postnatal mortality rate in the Southwestern Indian (three times greater than the United States as a whole) and otitis media.[11] Studies by Manke and Wallmeyer[12] and Maynard[13] cite the important role otitis media with chronic sequellae plays in neonatal mortality. Addressed to this point, acoustic impedance measurement may find its most vital application. An accurate assessment of some of the difficulties involved in the diagnosis of otitis media in the very young has recently been made by Dr. Wesley E. Compere, Jr.: "In spite of magnification by otoscopes, loupes, or microscopes, and in spite of various tubal inflation tests and examination of mobility of the drum by pneumatic otoscopy, to establish the presence of fluid in the middle ear of a child with assurance by clinical examination may be difficult or impossible. . . . Recent work, including that at UCLA and at the University of Toronto, indicates that impedance audiometry, using either the Zwislocki or Madsen bridges, is extremely accurate in identifying fluid in the middle ear."[14]

Acoustic impedance measurements in the very young can be done quickly and objectively and require no behavioral response. Thus, very young infants with extremely short attention spans can be tested. In addition, adequate hearing test facilities and trained personnel for conventional audiometric testing for the older child may not always be available. Acoustic impedance audiometry has been used successfully for many years in many clinics throughout the United States and Europe. Its use may provide a significant breakthrough in the earliest possible diagnosis of middle ear disease in young children.

Summary

Five hundred four New Mexico Pueblo Indian children, from three to 11 years of age, were screened as part of an Otitis Media Project, co-sponsored by the Indian Health Service and the Department of Communicative Disorders of the University of New Mexico. Results indicate more than twice as many hearing impairments due to excessive noise exposure than hearing deficit of other types. Acoustic impedance measurements were used to support the presence of conductive dysfunction. •

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PORSCHE AUDI

Cutaneous sarcoidosis with hypopigmentation and asthma

Robert Harmon, MD, and Peter Peterson, MD,

Denver, Colorado

A patient with asthma and unusual dermatologic manifestation serves as a reminder of the many ways sarcoidosis may present and of the fact that a trial of corticosteroids may produce significant improvement.

THE MANY WAYS THAT sarcoidosis may present have been well documented. Recently, a patient presented with asthma. He also had generalized lymphadenopathy and indurated skin lesions which were separated by extensive areas of hypopigmentation. Biopsy of one of the indurated lesions on the thigh showed a noncaseating granuloma. We report this case of an unusual cutaneous pattern with pigmentation because it is apparently a unique presentation.[1,2,3,4]

CASE HISTORY

A 31-year-old black male was admitted to Denver General Hospital for the first time with the chief complaint of asthma. The patient had had severe "double pneumonia" as a small child. His lung disease had been evaluated seven years ago and the diagnosis of asthma and possible sarcoidosis were suggested. The diagnosis of sarcoidosis was based upon basilar pulmonary infiltrates and hilar adenopathy. In 1969, a supraclavicular node biopsy showed normal lymphoid tissue.

He had a five-year history of skin lesions over the pretibial area. Progressive asthma had developed over the past four years interfering with his work. Despite a move to Denver seeking improvement in his asthma by a change in climate, he had more severe attacks and, in the month prior to admission, experienced increased cough and purulent sputum. His medical management included Tedral®*, tetracycline aminophyllin, and an Isuprel Medihaler®†. Corticosteroids had not been used in a systematic trial.

*Tedral®, Warner Chilcott, Morris Plains, New Jersey.
†Isuprel Medihaler®, Winthrop, New York, New York.

A family history of asthma and topic dermatitis was denied. An allergy evaluation in 1970 had been negative. His past occupation was that of a laborer with no exposure to known toxic inhalants. His weight was constant.

Physical Examination: The patient was a dyspneic young man in respiratory distress. Blood pressure was 102/70, temperature 37, respiratory rate 34, and pulse 100. There were multiple indurated pretibial lesions with extensive hypopigmentation between the lesions (Fig. 1). A few areas of induration were present on the anterior thighs. Uveitis was not observed. Enlarged anterior cervical, epitroclear, axillary and femoral

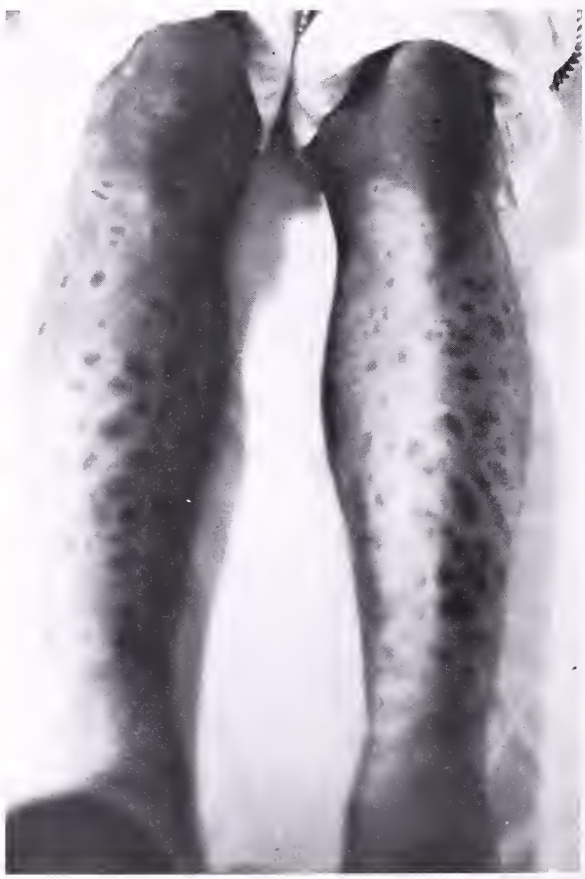

Fig. 1. Generalized hypopigmentation is noted with darker areas of induration.

TABLE 1

	November 6, 1969	After Bronchodilators	March 8, 1971*	April 12, 1971	Predicted Normal
Vital Capacity	2.15 L	2.28 L	1.58 L	3.86 L	4.45 L
FEV_1	0.95 L	0.98 L	0.91 L	2.00 L	3.19 L
MVV	42 L/min	41 L/min	41 L/min	90 L/min	173 L/min
pH	.....	.....	7.40	7.44	7.35-7.45
PCO_2	.....	.....	30	28	34-38
PO_2	.....	.....	43	63	65-75

*Between March 8, 1971 and April 12, 1971, the patient had a three-week trial of Predisone 60mg/day.

lymph nodes were noted. A persistent cough with white mucoid sputum and intercostal retractions, diffuse loud expiratory wheezes and fine dry basilar rales were found. The pulmonic closure was accentuated. The liver and spleen were six and four centimeters below the costal margin respectively. Marked clubbing was present but was believed by the patient to be a familial trait.

Laboratory Examination: Hematocrit was 47, WBC, 4,500 with 73 polys, 18 bands, six lymphs, three eosinophils. The total eosinophil count was 190. Calcium was 9.8 and 10.0mg/100ml, globulins were $Alpha_1$ 0.3, $Alpha_2$ 0.8, Beta 1.2, Gamma 2.0, and the Albumin was 3.4grams/100ml. Arterial blood gas determinations breathing air at rest were pH 7.40, PCO_2 30 and PO_2 43 (normal 65-75mm Hg). EKG showed sinus tachycardia and right ventricular enlargement. Chest x-ray from 1970 and the present (Fig. 3) showed persistent basilar infiltrates and upper lobe bullae. Liver scan confirmed hepatosplenomegaly. Pulmonary function determinations revealed severe obstructive lung disease (Table 1). Sputum culture showed normal flora. Skin testing showed no reaction to mumps, PPD, histoplasmin, or coccidioidin. AFB smears and cultures of the sputum were negative.

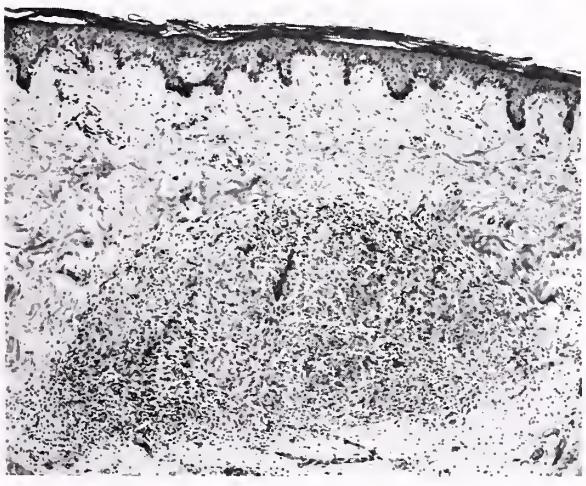

Fig. 2. Skin biopsy showing subcutaneous noncaseating granuloma.

Hospital Course: The patient's asthma cleared rapidly with IV aminophyllin 500mg every six hours and subcutaneous epinephrine 0.3cc. Skin and lymph node biopsy (Fig. 2) showed noncaseating granulomas. Special stains for fungi and tuberculosis were negative. The patient was noted to have recurrent mild asthma attacks and was severely restricted in activities. He was given 60mg of Prednisone per day and also INH and B-6 daily.

The patient has subsequently been seen in the outpatient clinic where great subjective improvement has been noted. The rash on his legs has cleared almost entirely (Fig. 4). His pulmonary function studies have also improved remarkably

Fig. 3. Chest x-rays reveal extensive interstitial disease and marked emphysematous changes especially on the right.

Fig. 4. Resolution of skin changes after nine months of Prednisone therapy.

Comment

This patient presented with skin lesions and asthma. The skin lesions were unusual and puzzling as to the etiology. In view of the biopsy, the differential considerations have included the granulomatous diseases: sarcoid, tuberculosis, histoplasmosis, and leprosy. However, negative laboratory studies, clinical improvement on steroids, and the combination of pulmonary, lymph node, and skin disease in a black male makes sarcoid the overwhelming first consideration. This case is unusual in that his skin lesions and his pulmonary functions both improved on steroids.[4,5]

The bronchospasm may be unrelated to his sarcoid, since sarcoid usually presents with impaired diffusion rather than obstructive lung disease. The fact that his skin lesions improved is very remarkable, since it is unusual for the skin lesions of sarcoid to clear on steroids.[4,5] •

ACKNOWLEDGMENT

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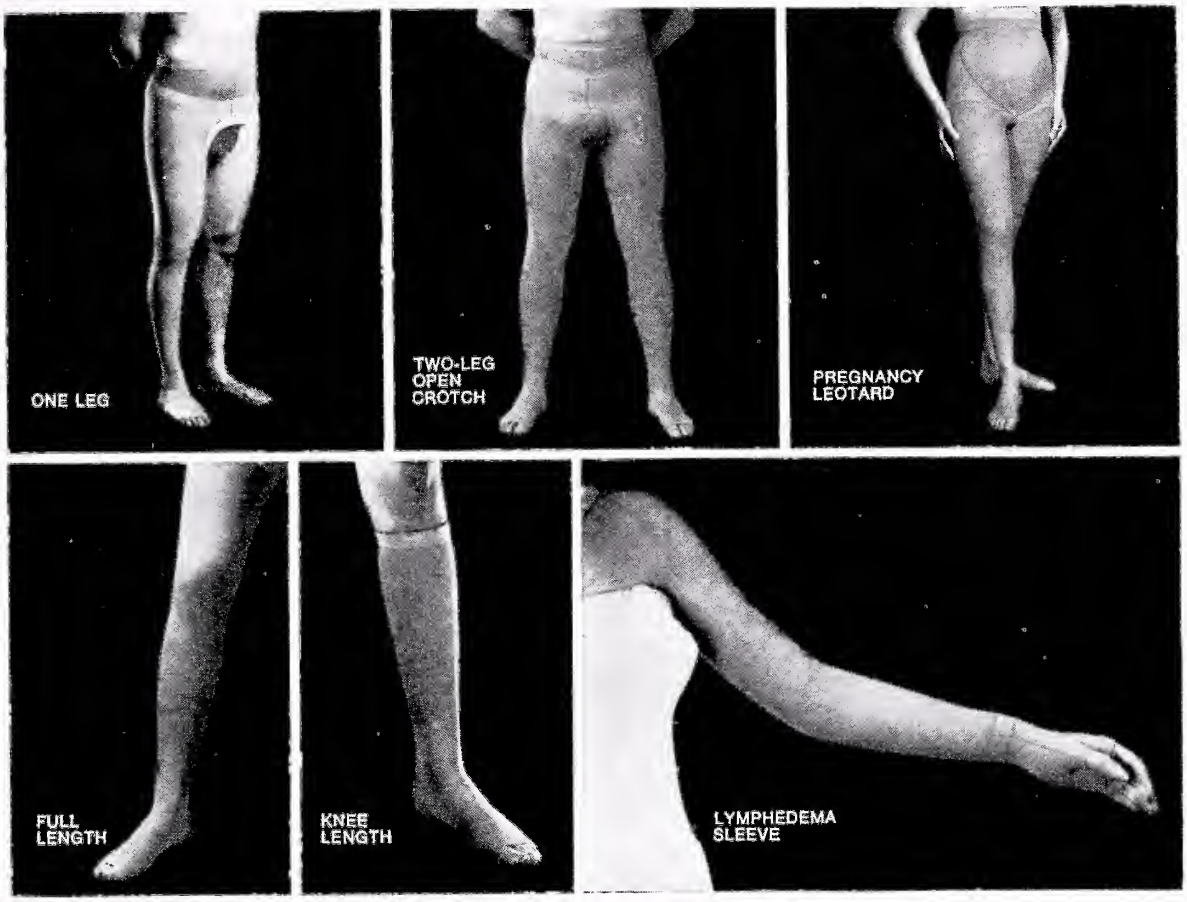

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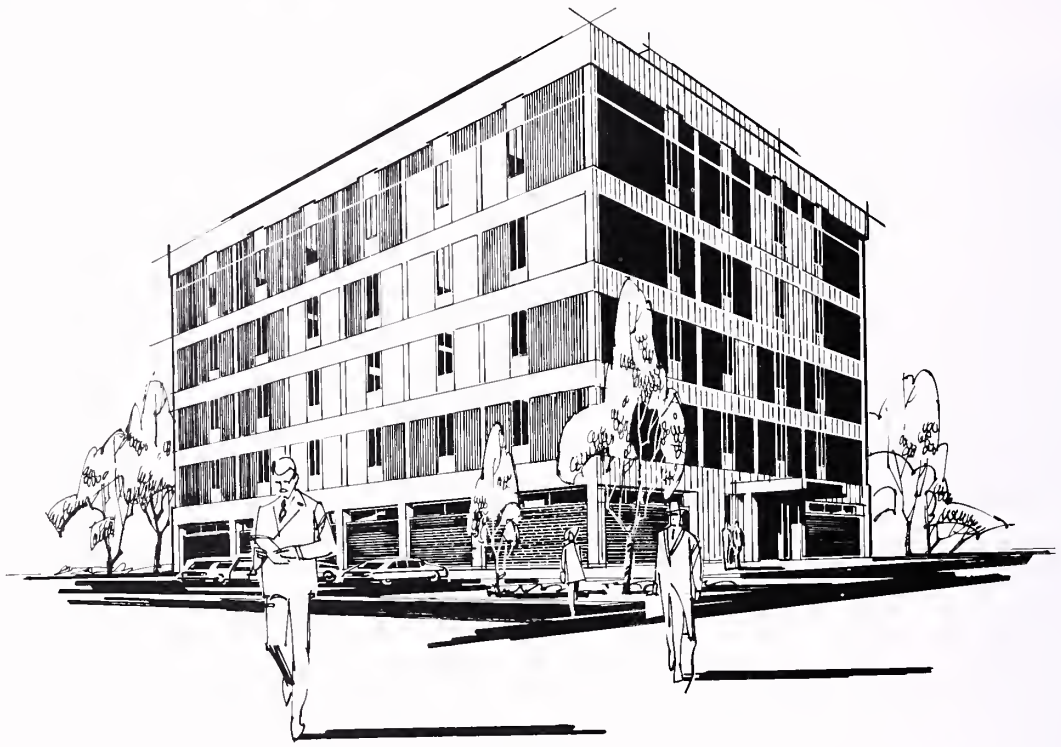

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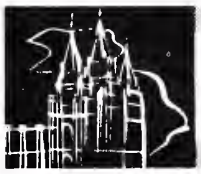
COLORADO

Dr. Davis to Head Group Practice Association

Dr. Grayburn Davis, an allergist at the Denver Clinic, was installed as President of the American Association of Medical Clinics at its 23rd Annual Meeting, which was held in Atlanta in early September. Dr. Davis will head the national organization representing the group practice of medicine which includes in its membership more than 300 medical clinics. Dr. Davis has served the Association as a Trustee from 1967 to 1970, and as 2nd Vice President, 1970-1971. He has also served as his clinic's delegate to the Association, and as an inspector in the AAMC Accreditation Program.

Honored as Faculty Members

Members of the Colorado Medical Society were honored as faculty members at the annual banquet of the Medical Alumni Association of the University of Colorado School of Medicine. Those honored were Drs. Robert K. Brown, Roy L. Cleere, William B. Condon, Raymond Feldman, Joseph H. Holmes, John A. Lichty, Johann Marx, and E. Stewart Taylor.



UTAH

Dr. Willem Kolff Cited by National Magazine

A recent *Family Health Magazine* reader survey selected Dr. Willem Kolff as one of the world's two most important people in the field of health. Dr. Kolff, director of the Division of Artificial Organs at the University of Utah Medical Center, tied for first place honors with Dr. C. Walton Lillehei, a noted pioneer in heart-lung machines and open heart surgery and the inventor of the pacemaker.

In the March issue of the magazine, readers were asked to choose the ten persons who have made the greatest contributions to health from a list, compiled by the magazine, of the one hundred most important people in the world of health.

The *Family Health Magazine* included Dr. Kolff in their list of 100 prominent scientists and physicians primarily for his invention of the artificial kidney. A member of the University of Utah's faculty since 1967, Dr. Kolff is currently directing the University's efforts to develop the artificial heart and other artificial organs.

New Codes for Specialty Designation

We have received the current list of designated medical specialty codes and recognized medical specialties which are accepted for identification n the American Medical Association master file of physicians.

Please check your listing in the 1972 DIRECTORY OF PHYSICIANS published by the ROCKY MOUNTAIN MEDICAL JOURNAL, and let us know if one of the new specialty codes would be more applicable for your practice designation. One code, and **one only,** *is permitted for each individual listing.*

LIST OF DESIGNATED SPECIALTY CODES

(Circle one. If limited, indicate by *)

AM	Aerospace Medicine	**NEP**	Nephrology	**PH**	Public Health
A	Allergy	**N**	Neurology	**PUD**	Pulmonary Diseases
AN	Anesthesiology	**CHN**	Neurology, Child	**R**	Radiology
BE	Broncho-Esophagology	**NM**	Nuclear Medicine	**DR**	Radiology, Diagnostic
CD	Cardiovascular Diseases	**NTR**	Nutrition	**PDR**	Radiology, Pediatric
D	Dermatology	**OBS**	Obstetrics	**TR**	Radiology, Therapeutic
DIA	Diabetes	**OBG**	Obstetrics and Gynecology	**RHU**	Rheumatology
END	Endocrinology	**OM**	Occupational Medicine	**RHI**	Rhinology
FP	Family Practice	**OPH**	Ophthalmology	**ABS**	Surgery, Abdominal
GE	Gastroenterology	**OT**	Otology	**CDS**	Surgery, Cardiovascular
GP	General Practice	**OTO**	Otorhinolaryngology	**CRS**	Surgery, Colon and Rectal
GPM	General Preventive Medicine	**PTH**	Pathology	**GS**	Surgery, General
GER	Geriatrics	**CLP**	Pathology, Clinical	**HS**	Surgery, Hand
GYN	Gynecology	**FOP**	Pathology, Forensic	**HNS**	Surgery, Head and Neck
HEM	Hematology	**PD**	Pediatrics	**NS**	Surgery, Neurological
HYP	Hypnosis	**PDA**	Pedriatics, Allergy	**ORS**	Surgery, Orthopedic
ID	Infectious Diseases	**PDC**	Pediatrics, Cardiology	**PDS**	Surgery, Pediatric
IM	Internal Medicine	**PM**	Physical Medicine and Rehabilitation	**PS**	Surgery, Plastic
LAR	Laryngology	**P**	Psychiatry	**TS**	Surgery, Thoracic
LM	Legal Medicine	**CHP**	Psychiatry, Child	**TRS**	Surgery, Traumatic
ND	Neoplastic Diseases	**PYA**	Psychoanalysis	**U**	Surgery, Urological
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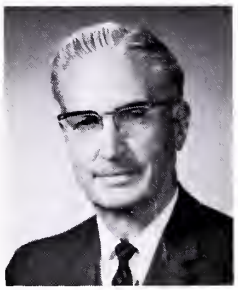

Scott M. Budge, MD, retired Logan surgeon and former president of the Utah State Medical Association, died August 2, 1972. He was 77. The son of William and Ann Hyer Budge, Doctor Budge was born May 24, 1895, in Paris, Idaho. He married Margaret Gibbs on August 25, 1923.

Doctor Budge received his MD degree in 1921 from Northwestern University Medical School. He served an internship and surgical residency at St. Luke's Hospital in Chicago and completed additional postgraduate work in Europe at the Universities of Paris, Bern, Rome, and Vienna.

Active in medical organizations, Doctor Budge was a past president of the Cache Valley Medical Society, the Utah State Medical Association, and the Utah Chapter, American College of Surgeons. He was also a past vice president of the Utah Chapter, International College of Surgeons and a member of the American Medical Association. Previously serving as head of surgery and medical director of the Logan L.D.S. Hospital, Doctor Budge was chairman of the Budge Clinic, past director of the Utah Medical Foundation, and past president of the Cache Chamber of Commerce. He had also served as the student physician at Utah State University.

Surviving the doctor are his widow, one son and two daughters.

Arnold LaMar Graff, Sr., MD, 73, died August 25, 1972, in Cedar City, Utah. The son of Paul Arnold and Ellen Elizabeth Spendlove Graff, Doctor Graff was born November 10, 1898, in Virgin, Washington County, Utah. He married Deloris Sophia Jensen on December 16, 1931, in Parowan; she died May 18, 1971.

Retired from medical practice, Doctor Graff had been a staff member of the Valley View Medical Center for 40 years. He was a member of the Southern Utah, Utah State, and American Medical Associations. A former livestock man, Doctor Graff was a member of the Utah Cattlemen's Association and the Utah Woolgrowers Association. He was also a member of the Cedar City Veterans of Foreign Wars, Cedar City Lions Club, Cedar City Knife and Fork Club, and a charter member of BPO Elks Lodge No. 1556.

Surviving the doctor are three sons and one daughter and 13 grandchildren.

Levi E. Reynolds, MD, Salt Lake City pediatric surgeon, died August 24, 1972, at the age of 60. Born March 15, 1912, in Mt. Pleasant, he was the son of Levi W. and Ellis Darnall Reynolds. He married Sarah Elizabeth Conover on June 10, 1936, in the Salt Lake L.D.S. Temple.

Doctor Reynolds received his MD degree in 1943 from the University of Colorado School of Medicine. He served internships at the Colorado General Hospital and Children's Hospital, Boston, Massachusetts, and residencies at several hospitals in Colorado. He had practiced surgery in Salt Lake City since 1951. Associated with the Crippled Children's Organization since 1951, Doctor Reynolds had also worked with the State Rehabilitation Service. He was a member of the Intermountain Pediatric Society, and the Salt Lake County, Utah State, and American Medical Associations.

A veteran of World War II, Doctor Reynolds was president of the Salt Lake Chapter of Sertoma International, and Governor of the Utah District. He was also a member of the Salt Lake Chamber of Commerce, the Towne House Athletic Club, and the Riverside Country Club of Provo. An active member of the Church of Jesus Christ of Latter-day Saints, he was a High Priest in the 33rd North Ward of Bonneville Stake.

Survivors include the doctor's widow, three sons, a daughter, and four grandchildren.

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Colorado

John Chenault Long, MD, died on September 2, 1972 of a cardiac arrest. Born in Lexington, Virginia on March 21, 1908, Doctor Long was educated in the Lexington public schools but came to the University of Colorado where he received his BA and MD degrees. His internship was served at Colorado General Hospital in 1931-32. Postgraduate training in ophthalmology was obtained at Hurst Eye, Ear, Nose, and Throat Hospital in Longview, Texas. He later returned to Denver and limited his practice to that specialty, being certified by the American Board of Ophthalmology in 1936.

Doctor Long held memberships in numerous professional organizations, among them the Denver and Colorado Medical Societies, American Medical Association, American Academy of Ophthalmology, Pan American Academy of Ophthalmology, Colorado Ophthalmological Society, and Pacific Coast Ophthalmological Society. He was also a Fellow of the American College of Surgeons. Other organizations with which he was affiliated included Sigma Chi and Phi Rho Sigma fraternities, the University Club, and the Botany Club. Doctor Long, a botanist and orchid fancier, authored the treatise "Native Orchids in Colorado", published by the Denver Museum of Natural History. While he was clinical professor and head of the Department of Ophthalmology at the University of Colorado, he wrote many articles on diseases of the eye.

Doctor Long was married to the former Elizabeth Currie of Boulder who preceded him in death on February 27, 1971. He is survived by one brother.

Clarence H. Morian, MD, died on his 98th birthday, August 30, 1972 at his home in Denver. Born on that same date in 1874 in Enterprise, Pennsylvania, he later moved with his family to Bradford, Pennsylvania where he received his primary and secondary education. He was graduated from Jefferson Medical College in Philadelphia, receiving his MD degree in 1912. Doctor Morian came to Colorado in 1914 where he first joined the staff of Saint Anthony Hospital in Denver and later became affiliated with the staff of Porter Memorial Hospital. He was made an Emeritus Member of that staff in 1957.

Doctor Morian was a member of the Sertoma Club, South Denver Civic Association, Denver Medical Society, Colorado Medical Society, of which he was a Life Member, and American Medical Association, from which he received recognition for 50 years of service in the practice of medicine in 1962.

The doctor was married to the former Leah Hart in 1914. She died in 1963 and in 1964 he was married to the former Helen Lapsley, by whom he is survived.

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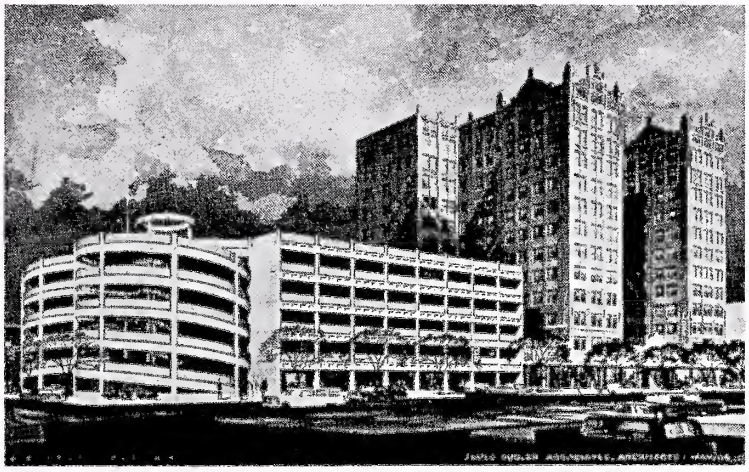

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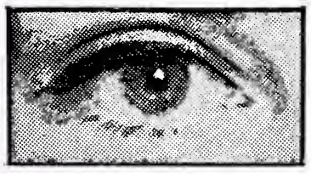

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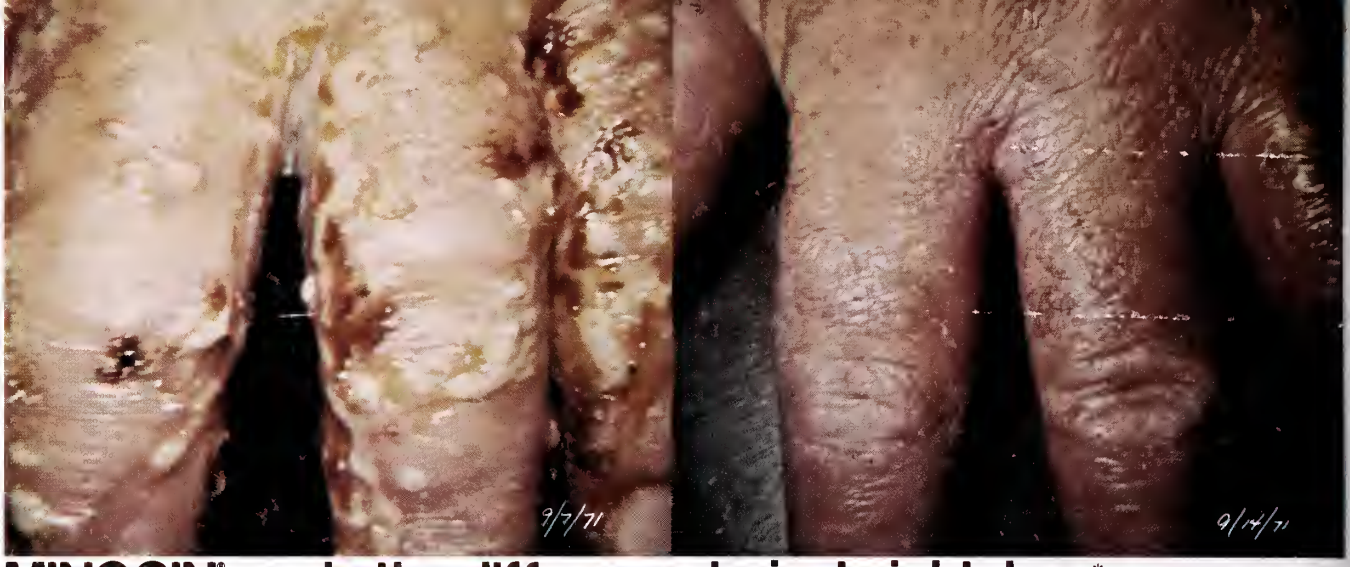

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Patient: 47-year-old male.

Diagnosis: Severe pyoderma, left hand.

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Therapy: MINOCIN Minocycline HCl Capsules, 100 mg: 200 mg *stat,* 100 mg every 12 hours. Medication began 9/7/71. By fourth day, temperature was normal and pustular lesions considerably improved. Last dose taken 9/14/71.

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Precautions: Use may result in overgrowth of nonsusceptible organisms, including fungi. If superinfection occurs, institute appropriate therapy. In venereal diseases when coexistent syphilis is suspected, darkfield examination should be done before treatment is started and blood serology repeated monthly for at least four months. Patients on anticoagulant therapy may require downward adjustment of such dosage. Test for organ system dysfunction (e.g., renal, hepatic and hemopoietic) in long-term use. Treat all Group A beta hemolytic streptococcal infections for at least 10 days. Avoid giving tetracycline in conjunction with penicillin.

Adverse Reactions: (Common to all tetracyclines, including MINOCIN) GI: (with both oral and parenteral use): anorexia, nausea, light-headedness, vomiting, diarrhea, glossitis, dysphagia, enterocolitis, inflammatory lesions (with monilial overgrowth) in anogenital region. *Skin:* maculopapular and erythematous rashes. Exfoliative dermatitis (uncommon). Photosensitivity is discussed above ("Warnings"). *Renal toxicity:* rise in BUN, dose-related (see "Warnings"). *Hypersensitivity reactions:* urticaria, angioneurotic edema, anaphylaxis, anaphylactoid purpura, pericarditis, exacerbation of systemic lupus erythematosus. When given in high doses, tetracyclines may produce brown-black microscopic discoloration of thyroid glands; no abnormalities of thyroid function studies are known to occur. In young infants, bulging fontanels have been reported following full therapeutic dosage, disappearing rapidly when drug was discontinued. *Blood:* hemolytic anemia, thrombocytopenia, neutropenia, eosinophilia.

NOTE: *Concomitant therapy:* Antacids containing aluminum, calcium, or magnesium impair absorption; do not give to patients taking oral minocycline. Studies to date indicate that MINOCIN is not notably influenced by foods and dairy products.

***Indicated in infections due to susceptible organisms. Culture and sensitivity testing recommended. Tetracyclines are not the drugs of choice in the treatment of any staphylococcal infection.**

†Case Report, Clinical Investigation Department, Lederle Laboratories.

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November 1972

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Meat's Not Meat Till It's in the Pan

This Charles Russell painting, particularly appropriate at this time of year, authentically portrays the hunter's dilemma. Far into the high country, he has sighted his game, fired, and the sheep has fallen to an inaccessible spot on the cliff below. Now the test of getting the ram up the ledge remains, and the hunter is obviously in a quandary as to his next step.

The viewer, joining the scene shortly after the ram has been shot, is led into the picture by the footprints of the hunter and horses which form a triangle that takes the eye through the painting. The triangular composition is duplicated in the arrangement of the painting's subjects. From the pack horse in the foreground, who nibbles unconcernedly on some brush, to the white lead horse, standing patiently peering back at the viewer as if sharing his knowledge and amusement of the situation, the eye is guided along the barrel of the gun to the cowboy, looking down at the ram and scratching his head in perplexity. In fact, it is almost impossible for the eye to escape the center of the painting. The neck of the brown horse points to the face of the cowboy while its head is in direct line with the neck of the white horse. The angle of the white horse's nose leads the eye to the fallen ram. The hunter's rifle also leads the onlooker from the white horse to the dead animal, and of course the cowboy's puzzled gaze is fixed on the sheep, whose stiffened foreleg brings the attention back to the horses.

The severity of the hunter's problem is sharpened in the viewer's mind by the height at which they are standing. Even though he sees only a small portion of the hillside, the viewer is aware of the altitude by the fact that the heads of the white horse and the cowboy are level with the peaks of the mountains in the distance, while below their feet hang cloud mists and a bird soars in the deep expanse of the left foreground.

From a few simple poses the viewer becomes aware of the hunter's entire problem—how to get the ram off the cliff, onto the pack horse, and back down the mountainside for winter night suppers. We share the hunter's bafflement at his problem but leave him with its resolution.

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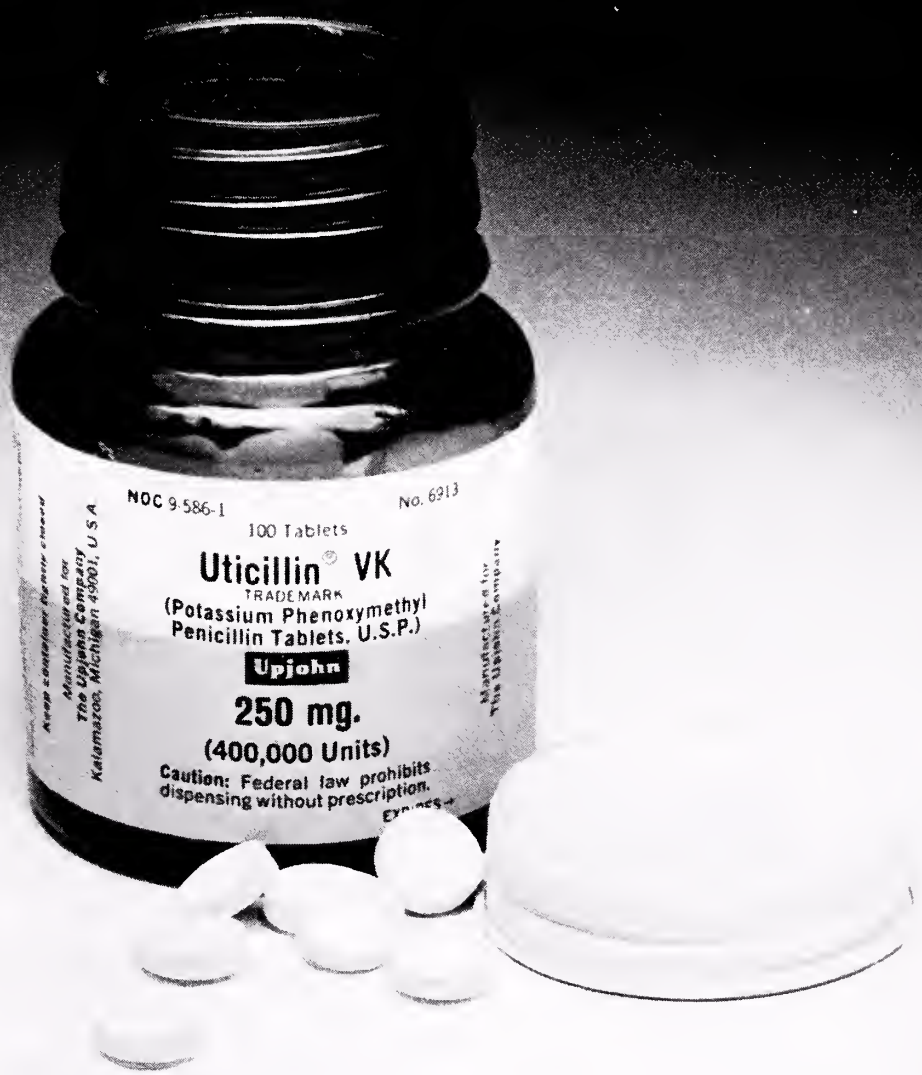

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OUR COVER PHOTO

Our cover photo for this month, a reproduction of "Meat's Not Meat Till It's in the Pan" by Charles Russell, is described on the inside cover. Included is an order form for your convenience in ordering any or all of the Russell paintings we have featured on our covers.

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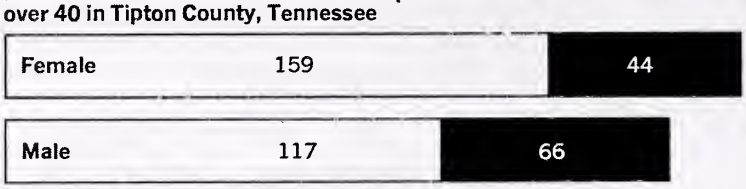
What it means to live and work in Tipton County, Tennessee

Persons who are white and over 40 have one chance in four of having solar keratoses... which may be premalignant

An epidemiologic study* conducted in Tipton County, Tennessee, revealed that 28.5% of white persons over 40 had solar keratoses; most had multiple lesions. Cluster sampling projected an estimated prevalence of 32.5% for white males and 19.5% for white females.

Though this is an unusually high percentage of affected persons, these lesions can occur in any white population, wherever people work or play out of doors.

Prevalence of solar keratoses in white persons over 40 in Tipton County, Tennessee



*Data on file, Hoffmann-La Roche Inc., Nutley, New Jersey.

Solar, actinic, senile keratoses

Called by many names, the typical lesion is flat or slightly elevated, brownish or reddish in color, papular, dry, adherent, rough, sharply defined; usually multiple lesions, chiefly on exposed portions of the skin.

Sequence/selectivity of response

Erythema in areas of lesions may begin after several days of therapy; height of reaction (only in affected areas)* usually occurs within two weeks, declining after discontinuation of therapy. Since this response is so predictable, lesions that do not respond should be biopsied to rule out the presence of a frank neoplasm.

Cosmetic results

Cosmetic results are highly favorable. Incidence of scarring is low—important with multiple facial lesions. Efudex should be applied with care near the eyes, nose and mouth.

5% cream–a Roche exclusive

Only Roche formulates the 5% cream... high in patient acceptability... high in clinical efficacy, especially for lesions of hands and forearms... economical.

Before prescribing, please consult complete product information, a summary of which follows:
Indications: Multiple actinic or solar keratoses.
Contraindications: Patients with known hypersensitivity to any of its components.
Warnings: If occlusive dressing used, may increase inflammatory reactions in adjacent normal skin. Avoid prolonged exposure to ultraviolet rays. Safe use in pregnancy not established.
Precautions: If applied with fingers, wash hands immediately. Apply with care near eyes, nose and mouth. Lesions failing to respond or recurring should be biopsied.
Adverse Reactions: Local—pain, pruritus, hyperpigmentation and burning at application site most frequent; also dermatitis, scarring, soreness and tenderness. Also reported—insomnia, stomatitis, suppuration, scaling, swelling, irritability, medicinal taste, photosensitivity, lacrimation, leukocytosis, thrombocytopenia, toxic granulation and eosinophilia.
Dosage and Administration: Apply sufficient quantity to cover lesion twice daily with nonmetal applicator or suitable glove. Usual duration of therapy is 2 to 4 weeks.
How Supplied: Solution, 10-ml drop dispensers—containing 2% or 5% fluorouracil on a weight/weight basis, compounded with propylene glycol, tris(hydroxymethyl)aminomethane, hydroxypropyl cellulose, parabens (methyl and propyl) and disodium edetate.
Cream, 25-Gm tubes—containing 5% fluorouracil in a vanishing cream base consisting of white petrolatum, stearyl alcohol, propylene glycol, polysorbate 60 and parabens (methyl and propyl).

an alternative to conventional therapy

Efudex®
(fluorouracil)
cream/solution

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MEETINGS

University of Colorado School of Medicine

THIRD SYMPOSIUM ON THE BATTERED CHILD
Denver, Colorado
November 27-28, 1972

CHILD DEVELOPMENT—ABERRATIONS AND MODIFICATIONS
Denver, Colorado
December 4-8, 1972

COLORADO ACADEMY OF FAMILY PHYSICIANS ANNUAL SUNDAY SYMPOSIUM
January 21, 1973

19TH GENERAL PRACTICE REVIEW
Denver, Colorado
January 22-27, 1973
(Repeat sessions will be held March 5-10 in Denver and June 11-16 in Estes Park.)

HIGH RISK INFANT CARE
February 12-16, 1973 (limited)

SIXTH ANNUAL SYMPOSIUM ON SURGERY OF THE HAND
Denver, Colorado
February 21-24, 1973

CLINICAL DERMATOLOGY FOR THE FAMILY PHYSICIAN
April 26-28, 1973 (limited)

For further information about these postgraduate courses, write: Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East Ninth Avenue, Denver, Colorado 80220.

National Foundation for Sudden Infant Death
POSTGRADUATE DAY
Colorado General Hospital, Denver, Colorado
February 2, 1973

Abraham Bergman, MD, reknown for his work on Sudden Infant Death and President of the National Foundation, will be the day's speaker.

For further information, contact: Mrs. Barbara Toltz, 1385 South Colorado Boulevard, Suite 622, Denver, Colorado 80222, (303) 758-6633.

Santa Barbara Heart and Lung Institute

A PERSPECTIVE ON NEW METHODS OF TREATMENT IN CONGENITAL AND ACQUIRED HEART DISEASE

Opticon Theater, Snowmass-at-Aspen, Colorado
January 14-16, 1973

For further information, write: American College of Cardiology, 9650 Rockville Pike, Bethesda, Maryland 20014.

THIRD ANNUAL RADIOLOGY CONFERENCE

Aspen Institute for Humanistic Studies
Aspen, Colorado
March 5-9, 1973

For further information, write: Maurice O'Conner, MD, Conference Director, Division of Radiology, Denver General Hospital, Denver, Colorado 80204.

17TH ANNUAL WYOMING POSTGRADUATE ALLERGY COURSE

Little America, Cheyenne, Wyoming
July 8-14, 1973

Fee: $150 for physicians and $125 for nurses and technicians.

For further information, write: Russell I. Williams, MD, Director, Wyoming Postgraduate Allergy Course, 1605 East 19th Street, Cheyenne, Wyoming 82001.

New Mexico Chapter,
American Academy of Family Physicians

16TH ANNUAL RUIDOSO SUMMER CLINIC

Chaparral Motel, Ruidoso, New Mexico
July 16-19, 1973

For further information, write: Mr. Bob Reid, Executive Secretary, New Mexico Chapter of the American Academy of Family Physicians, P.O. Box 456, Sunland Park, New Mexico 88063.

Judicial Council of the
American Medical Association

FOURTH NATIONAL CONGRESS ON MEDICAL ETHICS

Washington-Hilton, Washington, D.C.
April 26-28, 1973

For further information, write: Judicial Council, American Medical Association, 535 North Dearborn Street, Chicago, Illinois 60610.

University of Kentucky

PEDIATRIC OPHTHALMOLOGY CONFERENCE

Lexington, Kentucky
December 15-16, 1972

Fee: $75 for physicians and $10 for residents and fellows.

For further information, write: Frank R. Lemon, MD, Associate Dean for Continuing Education, College of Medicine, University of Kentucky, Lexington, Kentucky 40506.

University of Texas Medical Branch

22ND ANNUAL POSTGRADUATE COURSE "PROBLEMS OF OFFICE PEDIATRICS"

Galveston, Texas
March 15-16, 1973

Credit: 12 hours AAGP

Fee: $75

For further information, write: Lillian H. Lockhart, MD, Associate Professor, Department of Pediatrics, University of Texas Medical Branch, Galveston, Texas 77550.

Abraham Lincoln School of Medicine

COURSE IN LARYNGOLOGY AND BRONCHOESOPHAGOLOGY

Chicago, Illinois
March 5-10, 1973

COURSE IN NEUROTOLOGY

Chicago, Illinois
March 26-29, 1973

For further information about these postgraduate courses, write: Department of Otolaryngology, Eye and Ear Infirmary, 1855 West Taylor Street, Chicago, Illinois 60612.

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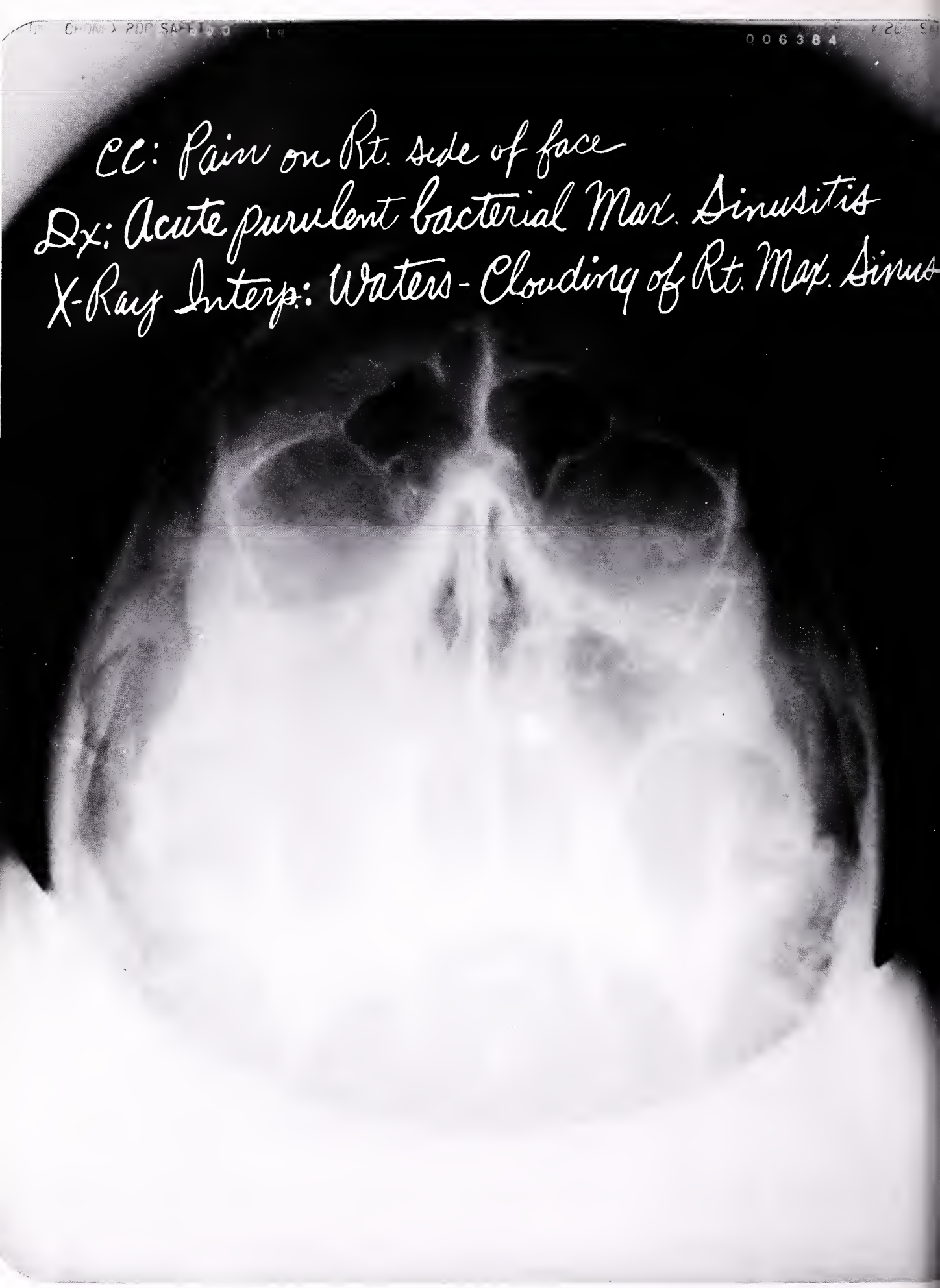

X-ray provided by Manhattan Eye, Ear and Throat Hospital

There are many frustrations in treating acute sinusitis.

Cleocin manages most of the bacterial ones.

Inadequate drainage, chronic rhinitis, allergy, exposure to temperature extremes, and other factors can delay recovery from acute sinusitis.

It's helpful to have an antibiotic like Cleocin HCl (clindamycin HCl hydrate, Upjohn) that can take care of most of the gram-positive bacterial problems related to the disease.

As one study* of 52 outpatients showed, acute maxillary sinusitis was associated with staphylococci in 50% of the group, with pneumococci in 25%, and with streptococci and various other organisms (chiefly gram-negative) in the remainder. Significantly, one-half of these staphylococcal infections were resistant to both penicillin and tetracycline (all were sensitive to erythromycin and chloramphenicol). Although not a part of this study, many other clinical and bacteriologic reports[1] have shown that such gram-positive bacteria, which most often are associated with acute sinusitis, are usually susceptible to Cleocin.

Can be taken before, with, or after meals

The total absorption of Cleocin is virtually unaffected by the presence of food in the GI tract.[1] Cleocin thus can be administered as prescribed without interfering with the patient's mealtimes.

Useful in patients hypersensitive to penicillin

Cleocin's chemical structure bears no relationship to penicillin or the cephalosporins. Cleocin therefore may be especially useful in patients with acute sinusitis who report a history of hypersensitivity to these antibiotics. Although hypersensitivity reactions have been uncommon with Cleocin, it should be used cautiously in atopic individuals. Cleocin is not recommended in the lincomycin-sensitive patient.

Please see following page for further prescribing information.

Cleocin® HCl 150 mg capsules

clindamycin HCl hydrate, Upjohn

*eynolds, R. C., et al.: Bull. Johns Hopkins Hosp. 114:269, 1964
Data on file, Medical Research Department, The Upjohn Company

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Side effects: In studies of 1,416 patients involving 92 clinical investigators, side effects were reported in 8.2%.[1] Diarrhea or loose stools were noted in 3% of these cases (one patient with bloody stools). In a few instances, diarrhea lasted several days. A slightly higher incidence of diarrhea or loose stools has been reported by some investigators in subsequent studies.

Toxicity: No irreversible hematologic, renal, dermatologic, or neurologic abnormalities have been reported.[1] Transient leukopenia and eosinophilia have been observed. Elevations of alkaline phosphatase and serum transaminases were observed in a few instances. As with other antibiotics, periodic liver function tests and blood counts should be performed during prolonged therapy.

In acute sinusitis and other upper respiratory infections due to susceptible staphylococci, streptococci, and pneumococci.

Cleocin® HCl

clindamycin HCl hydrate, Upjohn

Each preparation contains:	Clindamycin HCl hydrate equivalent to clindamycin base
150 mg Capsules	150 mg
75 mg Capsules	75 mg

Cleocin (clindamycin, Upjohn) is a new semisynthetic antibiotic produced from the parent compound lincomycin and provides more *in vitro* potency, better oral absorption and fewer gastrointestinal side effects than the parent compound.

Cleocin HCl (clindamycin HCl hydrate) is indicated in infections of the upper and lower respiratory tract, skin and soft tissue, and, adjunctively, dental infections caused by gram-positive organisms which are susceptible to its action, particularly streptococci, pneumococci and staphylococci. As with all antibiotics, *in vitro* susceptibility studies should be performed.

CONTRAINDICATIONS: Patients previously found to be hypersensitive to this compound or to lincomycin.

WARNINGS: Safety for use in pregnancy not established. Not indicated in the newborn (infants below 30 days of age).

PRECAUTIONS: Prescribe with caution in atopic individuals. Perform periodic liver function tests and blood counts during prolonged therapy. The serum half-life in patients with markedly reduced renal function is approximately twice that in normal patients; hemodialysis and peritoneal dialysis do not effectively remove Cleocin from the blood. Therefore, with severe renal insufficiency, determine serum levels of clindamycin periodically and decrease the dose appropriately. Should overgrowth of nonsusceptible organisms—particularly yeasts—occur, take appropriate clinically indicated measures.

ADVERSE REACTIONS: Generally well tolerated in clinical efficacy studies. Side effects reported in 8.2% of 1,416 patients. Of the total, 6.9% reported gastrointestinal side effects and 1.3% reported other side effects. Diarrhea or loose stools were reported in 3%. *Gastrointestinal:* Symptoms included abdominal pain, nausea, vomiting and diarrhea or loose stools. In a few instances, diarrhea lasted for several days; one case of bloody stools was reported. *Hematopoietic:* Transient neutropenia (leukopenia) and eosinophilia have been reported; relationship to therapy is unknown. No irreversible hematologic toxicity has been reported. *Skin and Mucous Membranes:* Skin rash and urticaria have been reported infrequently. *Hypersensitivity Reactions:* A few cases of hypersensitivity reaction have been reported. If hypersensitivity occurs, discontinue drug and have available the usual agents (epinephrine, corticosteroids, antihistamines) for emergency treatment. *Liver:* Although no direct relationship of Cleocin HCl (clindamycin HCl hydrate) to liver dysfunction has been noted and significance of such change is unknown, transient abnormalities in liver function tests (elevations of alkaline phosphatase and serum transaminases) have been observed in a few instances. Also, abnormal liver function test values at the beginning of therapy have returned to normal during therapy.

DOSAGE AND ADMINISTRATION: *Adults:* Mild to moderately severe infections—150 to 300 mg every 6 hours. Severe infections—300 to 450 mg every 6 hours.

Children: Mild to moderately severe infections—8 to 16 mg/kg/day (4 to 8 mg/lb/day) divided into three or four equal doses. Severe infections—16 to 20 mg/kg/day (8 to 10 mg/lb/day) divided into three or four equal doses.

Note: With β-hemolytic streptococcal infections, treatment should continue for at least 10 days to diminish the likelihood of subsequent rheumatic fever or glomerulonephritis.

SUPPLIED: *150 mg Capsules*—Bottles of 16's and 100's. *75 mg Capsules*—Bottles of 16's and 100's. *Sensitivity Disks*—2 µg. *Sensitivity Powder*—Vials.

For additional product information, see your Upjohn representative or consult package insert. MED B-4-S (LNU-3) JA71-1565

The Upjohn Company, Kalamazoo, Michigan 49001

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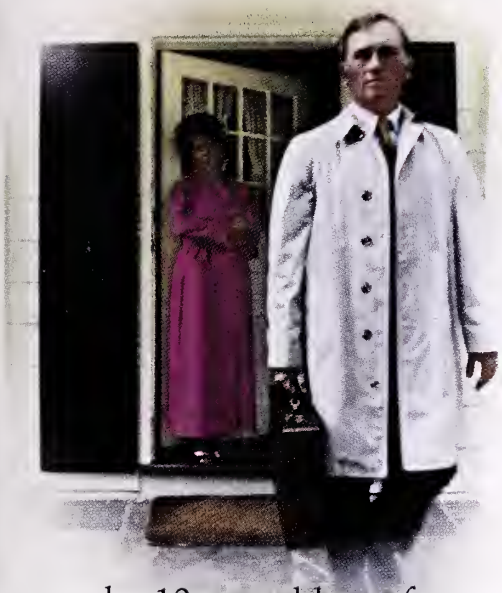
When he goes back to work, will his old tensions go back with him?



When it's mandatory to keep the post-coronary patient calm, consider Valium® (diazepam).

Although he's promised to take it easy back on the job, you know he's going back to the same stressful circumstances that may have contributed to his hospitalization. Your prescription for Valium can calm him. Lessened anxiety and tension can help in decelerating his former pace. During the period of readjustment Valium helps quiet undue anxiety.

For moderate states of psychic tension, 5-mg or 2-mg Valium tablets *t.i.d.* or *q.i.d.* can usually provide reliable relief. For severe tension/anxiety states, the 10-mg tablets often produce desired results.

The most commonly reported side effects are drowsiness, ataxia, and fatigue. Until individual response is determined, caution patient against driving or operating dangerous machinery.

Valium® (diazepam)

For the tense cardiac patient who must be kept calm

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation; tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

Dosage: Individualize for maximum beneficial effect. *Adults:* Tension, anxiety and psychoneurotic states, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed; adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d.; adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. *Geriatric or debilitated patients:* 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) *Children:* 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

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Lack of exercise, insufficient fluid intake, diet deficient in bulk, and certain medications can all contribute to constipation in the aging. Gradually the normal defecation "urge" is lost. And help is needed to restore the normal bowel function.

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Warning: Frequent or prolonged use of enemas may result in dependence. Take only when needed or when prescribed by a physician. Do not use when nausea, vomiting, or abdominal pain is present. **Caution:** Do not administer to children under two years of age unless directed by a physician.

FREE BOOKLET. *The Professional Treatment of Constipation.* Specifically prepared to assist you in providing your older patients with more detailed information about constipation and its treatment. For copies simply write to C.B.FLEET CO.,INC., P.O. Box 1100, Lynchburg, Va. 24505.

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☐ Bactocill (sodium oxacillin) capsules equivalent to 250 mg. and 500 mg. oxacillin and vials for injection equivalent to 500 mg. and 1 gm. oxacillin.

When irritable colon feels like this

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Gastroenteritis, colitis, gastritis or duodenitis can produce spasm or hypermotility, gas distention and discomfort. But Kinesed can provide a balanced formulation to relieve these symptoms:

- ☐ **belladonna alkaloids—for the hyperactive bowel**
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- ☐ **phenobarbital—for associated anxiety and tension**

Contraindications: Hypersensitivity to barbiturates or belladonna alkaloids, glaucoma, advanced renal or hepatic disease.
Precautions: Administer with caution to patients with incipient glaucoma, bladder neck obstruction or urinary bladder atony. Prolonged use of barbiturates may be habit-forming.
Side effects: Blurred vision, dry mouth, dysuria, and other atropine-like side effects may occur at high doses, but are only rarely noted at recommended dosages.
Dosage: *Adults:* One or two tablets three or four times daily. Dosage can be adjusted depending on diagnosis and severity of symptoms.

Children 2 to 12 years: One-half or one tablet three or four times daily. Tablets may be chewed or swallowed with liquids.

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(from the Greek **kinetikos**,
to move,
and the Latin **sedatus**,
to calm)

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antispasmodic/sedative/antiflatulent

Each *chewable tablet* contains: 16 mg. phenobarbital (warning: may be habit-forming); 0.1 mg. hyoscyamine sulfate; 0.02 mg. atropine sulfate; 0.007 mg. scopolamine hydrobromide; 40 mg. simethicone.

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This southwestern desert lizard seeks
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When attempts are made to probe him
from his niche, he gulps air
until his abdomen is distended up to
sixty per cent over its normal size...
thus wedging himself tightly
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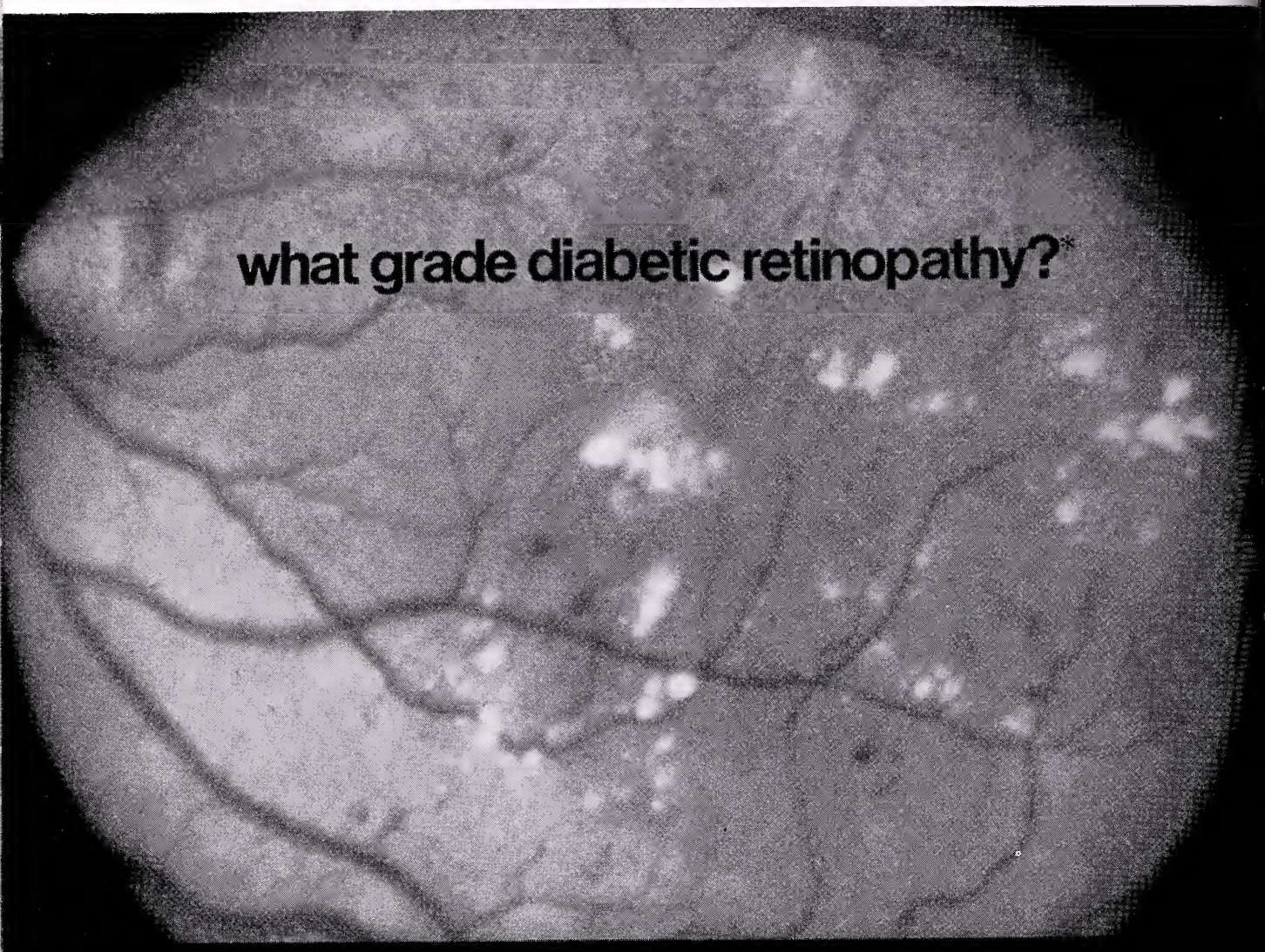

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With balanced, high potency B-complex and C vitamins.
No odor.
Virtually no aftertaste.
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Indications: Nutritional supplementation in conditions in which water-soluble vitamins are required prophylactically or therapeutically.

Warning: Not intended for treatment of pernicious anemia or other primary or secondary anemias. Neurologic involvement may develop or progress, despite temporary remission of anemia, in patients with pernicious anemia who receive more than 0.1 mg of folic acid per day and who are inadequately treated with vitamin B_{12}.

Dosage: 1 or 2 tablets daily, as indicated by clinical need.

Available: In bottles of 100.

Each Berocca Tablet contains:

Thiamine mononitrate	15 mg
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* **Grade II diabetic retinopathy is revealed by the small hemorrhages and exudates in this photograph of the fundus.**

Nose clear all knight

For upper respiratory allergies and infections including the common cold, Dimetapp Extentabs® effectively relieve the stuffiness, drip and congestion all night and all day long on just one Extentab every 12 hours. For most patients drowsiness or overstimulation is unlikely.

Dimetapp® Extentabs

Dimetane® (brompheniramine maleate), 12 mg.; phenylephrine HCl, 15 mg.; phenylpropanolamine HCl, 15 mg

INDICATIONS: Dimetapp Extentabs are indicated for symptomatic relief of allergic manifestations of upper respiratory illnesses, such as the common cold, seasonal allergies, sinusitis, rhinitis, conjunctivitis and otitis. In these cases it quickly reduces inflammatory edema, nasal congestion and excessive upper respiratory secretions, thereby affording relief from nasal stuffiness and postnasal drip.

CONTRAINDICATIONS: Hypersensitivity to antihistamines of the same chemical class. Dimetapp Extentabs are contraindicated during pregnancy and in children under 12 years of age. Because of its drying and thickening effect on the lower respiratory secretions, Dimetapp is not recommended in the treatment of bronchial asthma. Also, Dimetapp Extentabs are contraindicated in concurrent MAO inhibitor therapy.

WARNINGS: *Use in children:* In infants and children particularly, antihistamines in overdosage may produce convulsions and death.

PRECAUTIONS: Administer with care to patients with cardiac or peripheral vascular diseases or hypertension. Until the patient's response has been determined, he should be cautioned against engaging in operations requiring alertness such as driving an automobile, operating machinery, etc. Patients receiving antihistamines should be warned against possible additive effects with CNS depressants such as alcohol, hypnotics, sedatives, tranquilizers, etc.

ADVERSE REACTIONS: Adverse reactions to Dimetapp Extentabs may include hypersensitivity reactions such as rash, urticaria, leukopenia, agranulocytosis and thrombocytopenia; drowsiness, lassitude, giddiness, dryness of the mucous membranes, tightness of the chest, thickening of bronchial secretions, urinary frequency and dysuria, palpitation, hypotension/hypertension, headache, faintness, dizziness, tinnitus, incoordination, visual disturbances, mydriasis, CNS-depressant and (less often) stimulant effect, anorexia, nausea, vomiting, diarrhea, constipation, and epigastric distress.

HOW SUPPLIED: Light blue Extentabs in bottles of 100 and 500.

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memory of yesterday's pain...
apprehension over tomorrow's pain–

A·H·ROBINS

For the patient with a terminal illness, PAIN past, present, and future can dominate his thoughts until it becomes almost an obsession. The more he is aware of the pain he is now experiencing, the more difficult it is to erase his memory of yesterday's pain, and to allay his fearful anticipation of tomorrow's pain. Surely the last thing this patient needs is an analgesic containing caffeine to stimulate the senses and heighten pain awareness. A far more logical choice is Phenaphen with Codeine. The sensible formula provides ¼ grain of phenobarbital to take the nervous "edge" off, so the rest of the formula can help control the pain more effectively. Don't you agree, Doctor, that psychic distress is an important factor in most of your terminal and long-term convalescent patients?

the analgesic formula that calms instead of caffeinates

Phenaphen® with Codeine

Phenaphen with Codeine No. 2, 3, or 4 contains: Phenobarbital (¼ gr.), 16.2 mg. (warning: may be habit forming); Aspirin (2½ gr.), 162.0 mg.; Phenacetin (3 gr.), 194.0 mg.; Codeine phosphate, ¼ gr. (No. 2), ½ gr. (No. 3) or 1 gr. (No. 4) (warning: may be habit forming).

Indications: Provides relief in severer grades of pain, on low codeine dosage, with minimal possibility of side effects. Its use frequently makes unnecessary the use of addicting narcotics. **Contraindications:** Hypersensitivity to any of the components. **Precautions:** As with all phenacetin-containing products, excessive or prolonged use should be avoided. **Side effects:** Side effects are uncommon although nausea, constipation and drowsiness may occur. **Dosage:** Phenaphen No. 2 and No. 3—1 or 2 capsules every 3 to 4 hours as needed; Phenaphen No. 4—1 capsule every 3 to 4 hours as needed. For further details see product literature.

(III) Phenaphen with Codeine is now classified in Schedule III, Controlled Substances Act of 1970. Available on written or oral prescription and may be refilled 5 times within 6 months, unless restricted by state law.

A. H. Robins Company, Richmond, Virginia

THE WASHINGTON SCENE

A monthly news summary from the nation's Capitol by the Washington Office of the AMA.

The American Medical Association supported a two-year extension of the federal National Health Service Corps program under which Public Health Service personnel are assigned to areas with critical health manpower shortages.

Richard E. Palmer, MD, a member of the AMA Board of Trustees, told the House Health Subcommittee, that the Association believed that the NHSC program, which got underway 18 months ago, was having "an auspicious beginning" and promised "to help alleviate the maldistribution of health personnel affecting shortage areas." He said, "Its capabilities for bringing needed services into shortage areas are yet to be fully demonstrated."

"Additional experience will permit a fuller evaluation of the program's potential," Dr. Palmer said. "In supporting the NHSC, however, we believe it is essential that incentives now contained in the program are retained so that we may hopefully achieve our overall objective of meeting community needs on a long-term, continuing basis."

The AMA spokesman objected strenuously to a proposed deletion of a requirement for certification by state and district health societies that such health personnel are needed before assignment to a particular area.

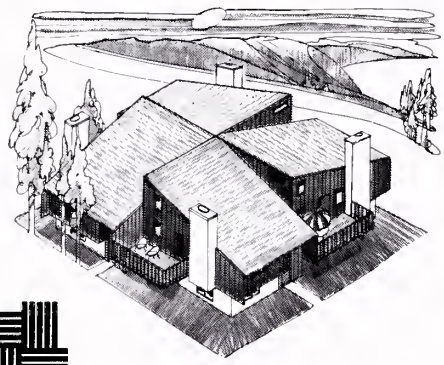
"Much of the planning to date has been centered around community participation in the NHSC program to further encourage the Corps physicians, dentists, and other professionals to feel they are part of the community life," Dr. Palmer said. "We urge this committee not to take any action now which would block communities and professionals from attaining this goal.

"Certification by the physician's or dentist's peers, the local members of his own profession, that his services are needed, together with concurrence by local government, provides the strong and necessary base of community acceptance and participation in his assignment. Removing this base could erect barriers and prevent the level of contact and rapport with peers which are significant factors in stimulating the professional man to establish professional roots in a community."

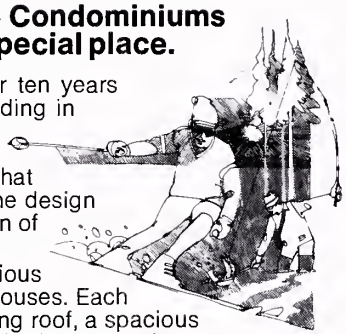
Furthermore, the record of cooperation by the medical profession at the local, state, and national levels speaks against the proposed amendment deleting the certification provision. The AMA has worked closely with the NHSC to help make the NHSC a reality.

At the Corps' request, the AMA has also distributed to all state medical associations and

A Very Special Place . . .



Wintermoor Townhouse Condominiums are a very special place.



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county medical societies brochures on the program, together with lists of NHSC personnel in central and regional offices to be contacted, requesting assistance in identifying areas particularly short of health manpower. All of these activities, and others, have been undertaken to inform state and local medical societies of the program's interest, method of operation, and goals.

"Most recently the Association has contracted with the Corps for the AMA to recruit physicians to serve in areas of need on a short-term basis. This undertaking, which we call Project U.S.A., will be a valuable adjunct to the Corps in its operational phases of its program.

"In short, the AMA has actively provided assistance in the implementation of the NHSC. The medical profession shares with government and with communities the common goal of getting needed medical services into shortage areas.

"Even more directly than our activities at the national level, we believe that the measure of success to date of this new program can be attributed to the cooperation received at the local level from the various medical communities. It should be kept in mind that the great number of assignments of physician personnel made in this program to date have been possible because the local and state societies have certified to the need for such health personnel. As a fact, in some instances, the medical society has been a moving party in seeking assignment of personnel under this program.

"We believe that the foregoing is strong evidence that the active participation of organized medicine is to the advantage, and not to the detriment of the program. We must assert strongly that we are opposed to the deletion of the present certification requirements in the law. The record of cooperation warrants continuing these requirements. The absence of such requirements could defeat the goal we all share."

The AMA also recommended continuation of a provision giving the Secretary of Health, Education and Welfare latitude as to the use of PHS facilities, rather than requiring their use as proposed, and against providing additional medical training scholarship arrangements in connection with the program.

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Diagnosis: Problem Drinking
Rx: La Hacienda

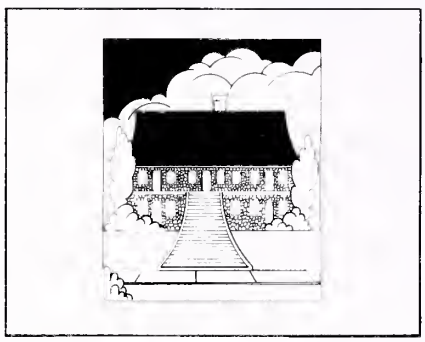
The staff of La Hacienda, in Hunt, Texas, has a very practical definition of the problem drinker. To them, a person is having difficulties when he (or she) discovers that alcohol interferes with his (or her) private or professional life. For such people, La Hacienda offers a much-needed private treatment facility for alcoholism.

La Hacienda: Broad Spectrum Treatment

Until La Hacienda, those willing and able to pay for private treatment of drinking problems have had few places to go.
La Hacienda offers a broad-spectrum program designed to change the life style of the problem drinker. Only by re-structuring his life is any long-term recovery possible.

La Hacienda: Residential Treatment Program

Patients check into La Hacienda for an individually determined length of time, normally four weeks. During this period, they will re-learn a more healthful life style, through habit, attitude and goal training. Techniques for this period of reflection include individual, group and family psychiatric and psychological therapy, as well as complete medical services.
The program is administered by



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While involved in therapy, the patient can enjoy the complete recreational facilities of the treatment center. These include swimming pool, golf course, tennis and riding facilities plus outdoor sports on the Guadalupe River.
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Comfortable dining facilities and exceptional cuisine are featured.
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Thus, the patient has an opportunity to relax within a pleasant environment while seeking a solution to his problem.

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La Hacienda: What To Do

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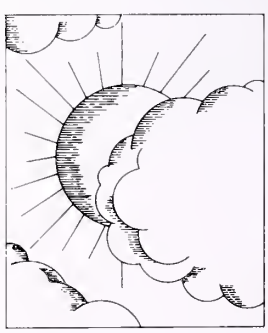


"The history of science, and in particular the history of medicine . . . is . . . the history of man's reactions to the truth, the history of the gradual revelation of truth, the history of the gradual liberation of our minds from darkness and prejudice."

– George Sarton, from "The History of Medicine Versus the History of Art"

Are combination drug products useful in treatment involving concomitant use of two or more drugs?

Opinion

Results of a questionnaire to 7,000 physicians:

62.9%
Believe combination drug products are useful.

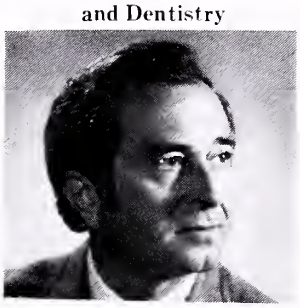
13.8%
Do not believe combination drug products are useful.

Are combination drug products useful in treatment involving concomitant use of two or more drugs?

Opinion & Dialogue

Doctor of Medicine

Louis Lasagna, M.D.
Professor and Chairman
Department of
Pharmacology & Toxicology
University of Rochester
School of Medicine
and Dentistry



Obviously, many drugs are given concomitantly. Whether it makes sense to combine medications in one preparation, be it capsule, tablet, or liquid, is a question that can be answered only by examining the advantages and disadvantages in the individual case.

Among the advantages is, first of all, convenience. The more medications that are taken concurrently and the more complicated the directions, the less likely the patient is to take medications accurately. From the standpoint of convenience and accuracy, and economy as well, you can make an important case for putting medications together in one preparation, as long as they are compatible.

By the same token, when you prescribe a properly tested and rational combination, you should have less worry about pharmaceutical or pharmacological compatibility – and about reasonable dosage ratios as well. Compatibility of the formulation should be demonstrated in the laboratory and clinic before the product is available for prescription—which is more than can usually be said for the physician's own spontaneous creations. And, the dosage ratios employed in rational precompounded combinations are designed to meet the needs of substantial numbers of "typical" patients.

There is no doubt that many "atypical" patients are to be found, and for them the prefabricated combination must be rejected. But that hardly argues for eliminating rational combinations from the market. Think, for example, of the problems that would arise if the components of widely accepted combinations, like the oral contraceptives and the diuretic-antihypertensives, always had to be prescribed, purchased and ingested separately.

One disadvantage that comes to mind is some doctors' unawareness of the ingredients a given combination contains. For example, a doctor might know that a patient is allergic to aspirin but forget that a certain analgesic mixture, which he knows only by its trade name, contains aspirin. His prescription, then, causes considerable discomfort, to say the least. This problem is a function of physician education, rather than of combination therapy as such. Improving doctors' knowledge about all medicaments they prescribe is a problem that deserves tackling on its own.

Another accusation leveled at combination drugs is that they encourage sloppiness of diagnosis and treatment. In many cases, however, a combination may prove to be the most effective choice. A good example of the usefulness of combinations appears in a recent article in the *Journal of Chronic Diseases* on the efficacy and side effects of an antihypertensive containing three ingredients, in which the track records of the combination drug and the individual ingredients were compared. Interestingly enough, whether the drugs were given individually or together, incidence and severity of side effects were the same. But blood pressure control was invariably better when the drugs were taken in one combination tablet than when they were taken separately (in "titratable" dosage) or in two or three different tablets.

Deciding which combinations constitute rational therapy obviously leads to a discussion of who is to determine which should be used and which should not. Realistically, I think combinations should be evaluated somewhat differently if they are old and established or new and untried.

In today's regulatory atmosphere, there is no possibility of a new combination being put on the market without a substantial amount of acceptable evidence in the form of controlled trials that show it to be safe and efficacious. On the other hand, I believe a different set of standards should apply to combination preparations that have been around for a long time. In other words, physician acceptance over a long period should be given some weight as evidence of the efficacy and safety of these drugs.

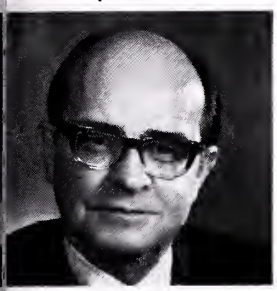
The FDA, however, does not seem to share this attitude. It often requires, for these older products, controlled trials that will monopolize the time of already overtired investigators and cost a great deal of money. I wish we could agree on a "grandfather clause" approach to preparations that have been in use for a number of years and that have an apparent satisfactory track record.

For example, I think some of the antibiotic combinations that were taken off the market by the FDA performed quite well. I am thinking particularly of penicillin - streptomycin combinations that patients—especially surgical patients—were given in one injection. This made for less discomfort for the patient, less demand on nurses' time, and fewer opportunities for dosage errors. To take such a preparation off the market doesn't seem to be good medicine, unless actual usage showed a great deal of harm from the injection (rather than the proper use) of the combination.

The point that should be emphasized is that there are both rational and irrational combinations. The real question is, who should determine which is which? Obviously, the FDA must play a major role in making this determination. In fact, I don't think it can avoid taking the ultimate responsibility, but it should enlist the help of outside physicians and experts in assessing the evidence and in making the ultimate decision.

Maker of Medicine

W. Clarke Wescoe, M.D.
President
Winthrop Laboratories



If two medications are ed effectively to treat a rtain condition, and it is own that they are com- tible, it clearly is useful d convenient to provide em in one dosage form. would make no sense, in ct it would be pedantic, insist they always be escribed separately. To oid the appearance of dantry, the "expert" de- ies the combination be- use it is a fixed dosage rm. When the "expert" vokes the concept of fixed sage form he obscures e fact that single-ingre- ent pharmaceutical prep- ations are also fixed sage forms. By a singular mantic exercise he im- ies a pejorative meaning the term "fixed dose" ly when he uses it with spect to combinations. hat is ignored is the sim- e fact that only in the rest of circumstances es any physician attempt titrate an exact thera- utic response in his pa- nt. It is quite possible at some aches and pains ll respond to 500 mg. of pirin yet that fact does t militate against the *us- l* dose being 650 mg.

The other semantic ploy ten called into play is to scribe a combination oduct as rational or irra- nal.

Take antibiotic mixtures, e source of much of the iticism generated against combinations generally. Obviously, no one should be exposed willy-nilly to the potential side effects of two or three antibiotics when only one is needed. At the same time there are cases where it is prudent to prescribe more than one. The clinician is the judge in these circumstances, as he should be.

There is no clear definition of the word rational. Most persons, I suppose, would find it synonymous with reasonable, but in many circumstances it may best be defined as the opinion of those in power at the moment.

Other factors govern combination therapy, not the least of which has been its broad use by practicing physicians anxious to achieve convenience in prescribing, to reduce medication error, and to save money for their patients. Combinations clearly have met the test on all three counts.

I have been impressed by studies showing that the rate of error climbs markedly with the number of medications to be taken, even with sophisticated patients. When medically justified, therefore, this factor alone supports the logic of combination therapy.

The cost argument for combinations appears to be irrefutable. In 1971, R. A. Gosselin studied the 71 combination products (excluding oral contraceptives) among the 200 most prescribed drugs. The study found that if all 71 products were discontinued, and if each ingredient in these combinations were prescribed separately, the price of medicines to patients would jump by $443.2 million on a national basis! At a time when the cost of medical care is under so much fire, it would be nonsensical to boost costs without clearly irrefutable medical reasons.

The part played by government on this question, of course, is fundamental. The FDA should play a role in determining which combinations are reasonable. That role, as defined by law and regulation, is to ensure that any medication on the market is safe and effective in line with its label claims. Certainly combinations are entitled to as much consideration as single entities – neither more nor less. So long as the addition of one drug to another does not make either less safe, or less effective, so long as they are compatible in a formulation, we have a reasonable product. It makes no sense to recommend the use of two products for certain conditions and to deny their being combined in a single form. An unhappy side effect of the problem concerns the efficacy panel discussions of many products submitted for review. The term "effective, but" has been freely interpreted to mean "ineffective" in toto, regardless of the merit of the individual drugs. This interpretation has placed numerous useful combination products in needless jeopardy.

In reading the actual reports of the review panels, it seems clear that some of the ratings were based less on scientific research and clinical observation than on the "informed" opinions of the panelists. These "informed" opinions were accepted at face value, while the "informed" opinions of others who had used the products were rejected. All of this put combination products into a sort of scientific never-never land.

It should be kept in mind by all, government as well as others involved in our health care system, that advances in therapy are seldom made in leaps and bounds but rather by small painstaking steps—and that some of these steps have resulted from research in combination drugs as well as with single entities. Given the near-infinite biologic variation in patient response, this is hardly surprising to clinicians. It should not be to regulatory agencies either.

In the end, the practicing physician is in the best position to decide if a particular combination makes sense. Such a decision should not be made exclusively by those whose responsibility for continuing clinical care is limited. Clinicians are the best judges of efficacy because the ultimate proof of any product's effectiveness is acceptance by physicians who have observed its actions in patients over time. The corollary statement may be made about over-the-counter medicines, which would not long survive if they failed to afford the relief the user anticipates. That the antihistamine in a "cold" remedy may not *always* be necessary is no reason to proscribe the combination generally.

Opinion & Dialogue

What is your opinion, doctor?
We would welcome your comments.

P·M·A

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Usual adult dose: *One* tablet t.i.d. at mealtimes, and two tablets at bedtime.	Usual adult dose: *Two* tablets t.i.d. at mealtimes, and two tablets at bedtime.

* **INDICATIONS:** Based on a review of this drug by the National Academy of Sciences—National Research Council and/or other information, FDA has classified the indication as follows:

"Possibly" effective: as adjunctive therapy in peptic ulcer and in the irritable bowel syndrome (irritable colon, spastic colon, mucous colitis, and functional gastrointestinal disorders), especially when accompanied by anxiety or tension.

Final classification of this indication requires further investigation.

CONTRAINDICATIONS: Tridihexethyl chloride: Previous allergic or idiosyncratic reactions to it or related compounds; urinary bladder-neck obstructions (e.g., prostatic obstructions due to hypertrophy); pyloric obstructions because of reduced motility and tonus; organic cardiospasm (megaesophagus); glaucoma; possibly in stenosing gastric or duodenal ulcers with significant gastric retention. **Meprobamate:** Acute intermittent porphyria and allergic or idiosyncratic reactions to meprobamate or related compounds such as carisoprodol, mebutamate, tybamate, carbromal.

WARNINGS: Meprobamate: *Drug Dependence:* Physical and psychological dependence and abuse have occurred. Chronic intoxication, from prolonged use and usually greater than recommended doses, leads to ataxia, slurred speech, vertigo. Carefully supervise dose and amounts prescribed, and avoid prolonged use, especially in alcoholics and addiction-prone persons. Sudden withdrawal after prolonged and excessive use may precipitate recurrence of pre-existing symptoms (e.g., anxiety, anorexia, insomnia) or withdrawal reactions (e.g., vomiting, ataxia, tremors, muscle twitching, confusional states, hallucinosis; rarely convulsive seizures, more likely in persons with CNS damage or pre-existent or latent convulsive disorders). Therefore, reduce dosage gradually (1-2 weeks) or substitute a short-acting barbiturate, then gradually withdraw. *Potentially Hazardous Tasks:* Driving a motor vehicle or operating machinery. *Additive Effects:* Possible additive effects between meprobamate, alcohol, and other CNS depressants or psychotropic drugs. *Pregnancy and Lactation:* Safe use not established; weigh potential benefits against potential hazards in pregnancy, nursing mothers, or women of childbearing potential. Animal data at five times the maximum recommended human dose show reduction in litter size due to resorption.

PRECAUTIONS: Tridihexethyl chloride: Use cautiously in elderly males (possible prostatic hypertrophy). **Meprobamate:** To avoid oversedation, use lowest effective dose, particularly in elderly and/or debilitated patients. Consider possibility of suicide attempts; dispense least amount of drug feasible at any one time. To avoid excess accumulation, use caution in patients with compromised liver or kidney function. Meprobamate may precipitate seizures in epileptics.

ADVERSE REACTIONS: Tridihexethyl chloride: Dry mouth (fairly frequent at oral doses of 100 mg), constipation or "bloated" feeling, tachycardia, bradycardia, dilated pupils, increased ocular tension, weakness, nausea, vomiting, headache, drowsiness, urinary hesitancy or retention, dizziness. **Meprobamate:** *Central Nervous System.* Drowsiness, ataxia, dizziness, slurred speech, headache, vertigo, weakness, paresthesias, impairment of visual accommodation, euphoria, overstimulation, paradoxical excitement, fast EEG activity. *Gastrointestinal:* Nausea, vomiting, diarrhea. *Cardiovascular:* Palpitations, tachycardia, various forms of arrhythmia, transient ECG changes, syncope; also hypotensive crises (including one fatal case). *Allergic or Idiosyncratic:* Usually after 1-4 doses. Milder reactions: itchy, urticarial, or erythematous maculopapular rash (generalized or confined to groin). *Other:* leukopenia, acute nonthrombocytopenic purpura, petechiae, ecchymoses, eosinophilia, peripheral edema, adenopathy, fever, fixed drug eruption with cross reaction to carisoprodol, and cross sensitivity between meprobamate/mebutamate and meprobamate/carbromal. More severe, rare hypersensitivity: hyperpyrexia, chills, angioneurotic edema, bronchospasm, oliguria, anuria, anaphylaxis, erythema multiforme, exfoliative dermatitis, stomatitis, proctitis, Stevens-Johnson syndrome, bullous dermatitis (one fatal case after meprobamate plus prednisolone). Stop drug, treat symptomatically (e.g., possible use of epinephrine, antihistamines, and in severe cases corticosteroids). *Hematologic:* Agranulocytosis and aplastic anemia (rarely fatal), but no causal relationship established. Rarely, thrombocytopenic purpura. *Other:* Exacerbation of porphyric symptoms.

USUAL ADULT DOSAGE: One 'Milpath'-400 (meprobamate 400 mg + tridihexethyl chloride 25 mg) tablet three times a day at mealtimes and 2 at bedtime. For greater anticholinergic effect, 2 'Milpath'-200 (meprobamate 200 mg + tridihexethyl chloride 25 mg) three times a day at mealtimes and 2 at bedtime. Meprobamate dose should not exceed 2400 mg daily.

Not for use in children under age 12.

OVERDOSAGE: Tridihexethyl chloride: Acute overdosage can produce dry mouth, difficulty swallowing, marked thirst; blurred vision, photophobia; flushed, hot, dry skin, rash; hyperthermia; palpitations, tachycardia with weak pulse, elevated blood pressure; urinary urgency with difficulty in micturition; abdominal distention; restlessness, confusion, delirium and other signs suggesting acute organic psychosis. Empty stomach after administration of Universal Antidote and treat symptomatically as indicated. **Meprobamate:** Suicidal attempts with meprobamate, alone or with alcohol or other CNS depressants or psychotropic drugs, have produced drowsiness, lethargy, stupor, ataxia, coma, shock, vasomotor and respiratory collapse, and death. Empty stomach, treat symptomatically; cautiously give respiratory assistance, CNS stimulants, pressor agents as needed. Meprobamate is metabolized in the liver and excreted by the kidney. Diuresis and dialysis have been used successfully. Carefully monitor urinary output; avoid overhydration; observe for possible relapse due to incomplete gastric emptying and delayed absorption.

Before prescribing, consult package circular or latest PDR information.

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MEDICAL SCHOOL NOTES

University of Colorado School of Medicine

The University of Colorado School of Medicine has been awarded a grant of $99,704 from the Robert Wood Johnson Foundation of Princeton, New Jersey to supplement student scholarship and loan funds during the next four years. The grant is part of a $10 million student aid program inaugurated by the Johnson Foundation in a national effort to aid physician-poor rural areas and disadvantaged urban neighborhoods. Eligible for aid under the program are women and students from certain ethnic minority groups and rural backgrounds. Rural students are defined under terms of the grant as those coming from a county outside a standard metropolitan area with a population of less than 50,000.

In announcing the grant, Dr. David E. Rogers, president of the Johnson Foundation, stated that currently available evidence indicates that students from certain backgrounds tend to practice in underserved and inner-city communities after graduation. The Johnson Student-Aid Program is designed to meet the financial needs of these students in an effort to increase the proportion of health professionals in areas now undermanned in this respect. The Johnson Foundation allocates funds in such a way as to recognize those schools that have made the most effort to enroll women and students from minority and rural environments. On October 15, 1971, the date on which the calculation for the grant was based, the CU Medical School had enrolled 123 women and minority and rural students of a total student body of 474.

Dr. Harry P. Ward, dean of the School, said half the grant will be utilized for scholarships and half for low-interest loans repayable over a 10-year period after the student has completed his medical studies and training.

University of Utah College of Medicine

The University of Utah College of Medicine was awarded a grant of $110,695 from the National Institutes of Health for the training of physicians' assistants under the Utah MEDEX program. The program, which is in its second year, was described at length in "The Utah MEDEX Demonstration Project" on pages 53-56 of our January 1972 issue.

* * * * *

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The University of Utah College of Medicine was another Rocky Mountain area medical school to receive a grant from the Johnson Foundation for the training of women and students from minority-group and rural backgrounds as future doctors. Aims and purposes of the grant, which totaled $76,879 for Utah, were outlined under Colorado medical school news.

University of New Mexico School of Medicine

This fall Project Porvenir is bringing comprehensive medical care to those living in rural New Mexico. Project Porvenir (meaning "future") was made possible through a $233,000 two-year contract with HEW's Bureau of Health Manpower Education.

A team consisting of two medical students, two nursing students, and one pharmacy student, all in their senior year, began work at a small clinic in Hatch, a farming community on the Rio Grande in southern New Mexico, for a period of from six to 12 weeks. In addition, another five-member student team is working at small health clinic in Truchas, located in the Sangre de Cristo mountains of northern New Mexico. The Truchas clinic is currently being renovated through an $87,000 grant from HEW's Health Services and Mental Health administration.

Project Porvenir, the only supervised student-run health education and delivery system of its kind in the country, is designed to train health science students in rural health care delivery as well as offer such delivery to areas in the state where little or no health care exists. The Project is also testing the new concept of using an interdisciplinary team to deliver comprehensive services. Under supervision and backup from local health professionals and University faculty members, the student team has primary responsibility for the diagnosis, management, treatment, and followup care of patients.

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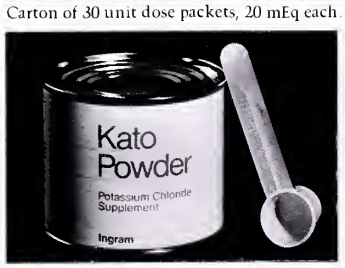

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Peer Review

PEER REVIEW IS A term now constantly used in hospitals, in medical societies at all levels, in medical publications of all kinds—and in the doctors' cloak room. In the physician's vocabulary, peer review has become a household word. The concept is praised by many, accepted by most, denounced by a few. It is repeatedly discussed and debated. The recurring discussions are usually not about the principle; the heated arguments are about its method of application.

Peer review has always been part of medical practice. There has always been professional disapproval and censure of poor quality, ignorance, or radicalism in medical treatment. In organized medicine there has always been evaluation by peers. Many years ago peer review became an accepted and productive influence in upgrading of professional activity in the hospital and more recently became an essential part of accreditation programs of hospitals. Application of peer judgment to the evaluation of the doctor's fee is a relatively new dimension, and peer review of physicians' charges has explosively increased interest in the concept.

There are a few physicians who oppose peer review of their professional care. There are many who oppose peer review of their professional charges. Some of the opposition is toward the principle itself. Much more of the disagreement is with the definition of peer in application of the principle. According to Webster a peer is "one of the same rank, quality, etc.; an equal"; but peer cannot be defined so simply in practice. When peers are selected for specific judgments, almost every physician at some time must be concerned with who is his peer. Should peers practice the same specialty? How limited a portion of the same specialty? Should peers be the same age? Should their length of experience be equal? Should their locale of practice be similar? Should their clientele be the same? Should peers be equally active in practice? These are some of the questions of definition that worry many physicians.

However, these are questions that have previously been considered by our colleagues who have been, and are, involved in direction and management of health care systems, from the long-practicing adjudication boards of the Blues to the peer review panels of the newer foundations. They are not new nor unappreciated problems to those experienced with health plans. As pure a peer review system as is practical has always been the aim of the physicians involved in formulation or management of these programs.

Moreover, our peers will come much nearer to providing equity and justice in judgment of professional performance and its compensation than any other individual or group. Methods of judgment of quality of care or reasonableness of charges have never been perfect—nor will they ever be. In a fair and logical system the inequities will balance out. Criticism is necessary for improvement, but it will be productive only if it is in this perspective.

Finally, and perhaps most importantly, effective peer review can be obtained by government or any third party *only* by utilizing the practicing physician. Government cannot buy it. In any appointive or regimented system, peer review becomes empirical, and then by any definition it is not peer review. It is the one thing that physicians have that the government as a third party needs, but cannot buy. Peer review is our most powerful weapon in the relentless struggle to preserve private enterprise in the practice of medicine. Peer review is a trump card. Don't knock it.

AMA Activities in the Field of Cancer

DURING THE PAST YEAR AMA's Board of Trustees broke a long-standing precedent by appointing a committee to be concerned with a single disease category, cancer. AMA has never before had a committee oriented toward a specific clinical problem. As the first Chairman of the AMA Advisory Committee on Cancer, I would like you to know the nine members who serve with me, Drs. Anthony M. Bruno, Henry A.

Crawford, James H. Gosman, Oscar B. Hunter, Jr., Joseph G. Katterhagen, Donald B. Koonce, Keith P. Russell, William O. Russell, and Charles D. Sherman. Many of these outstanding men are known to each of you. The Committee charge as determined by the Board of Trustees is as follows:

At the House of Delegates meeting at the American Medical Association Clinical Convention at New Orleans, Louisiana, on November 28-December 1, 1971, the Board of Trustees informed the House of the appointment of a special Advisory Committee on Cancer to be comprised of ten AMA members. The Board believed that the creation of an Advisory Committee on Cancer was warranted by the increased emphasis and priority given to the problem of cancer by the American people, the United States Congress, and the President of the United States during the year 1971.

The Advisory Committee on Cancer is accordingly charged with advising the Board of Trustees on the following:

(1) Substantial and promising developments in the development of cancer research (carcinogenesis and therapy) that warrant public attention.

(2) Activities that might be undertaken by the American Medical Association in the field of professional and public education with respect to cancer.

(3) The appropriate position that might be taken by the American Medical Association with respect to existing and changing legislation that relates to government support of cancer research, cancer control and therapy, and other cancer programs.

(4) The advantages and disadvantages of cooperative consultation with organizations such as the National Cancer Institute, the American Cancer Society, the American Association for Cancer Research, national medical specialty organizations, Regional Medical Programs, and other governmental and professional organizations for purposes of coordinating their activities in the field of cancer research, treatment, and public education.

(5) The benefits that might be derived from joint development of programs for national conferences on cancer.

(6) The activities that might be undertaken by the American Medical Association to coordinate the activities of the cancer committees of state and local medical societies.

(7) The desirability or undesirability of making an approved cancer program a condition for JCAH accreditation of hospitals.

(8) Any other matters that relate to problems of cancer that might be of interest to the Board of Trustees.

It is expected that the Advisory Committee on Cancer will meet at suitable intervals to consider these and related matters and will make appropriate reports of its deliberations and recommendations to the Board of Trustees.

For many years the *Journal of the American Medical Association* has published an outstanding series of articles under the title "Current Concepts in Cancer". At its first meeting, the Committee on Cancer urged AMA to publish a collection of these papers, updated as appropriate, as a volume for the profession. I am pleased to report that work already has begun on the book; I expect to be able to bring copies to next year's meeting. Of course, "Current Concepts in Cancer" will continue as a regular feature in the journal.

AMA's Annual Convention provides an outstanding scientific program. At the 1972 meeting in San Francisco, 13 separate papers dealing with the variety of cancer problems were presented. The Committee plans to encourage the Council on Scientific Assembly to consider even more papers on cancer for presentation at future meetings.

Last year, 83 articles on cancer appeared in *JAMA*; however, these were only a part of AMA's communication efforts against the disease. The 12 issues of *Archives of Dermatology* carried 40 articles; the *Archives of Pathology*, 35; the *Archives of Surgery*, 33; the *Archives of Otolaryngology*, 29; the *Archives of Internal Medicine*, 28; the *Archives of Ophthalmology*, 19; *American Journal of Diseases of Children*, nine; and the *Archives of Neurology* carried four articles. All are familiar enough with AMA's publications to know that these numbers represent a significant portion of AMA's professional communication effort.

Cancer already is a primary concern at AMA as demonstrated, and the new Advisory Committee on Cancer can be expected to focus even more of AMA's resources in pursuit of a solution to the dread disease.

Kenneth C. Sawyer, MD
AMA Board of Trustees

A Euthanasia Society

OUR JOURNAL HAS RECEIVED a communication from Richard Henry, DD, minister of the First Unitarian Church in Denver. It tells of an activity which concerns our profession in general and every physician, particularly those in private practice. We have published comment and Letters to the Editor upon the subject of euthanasia in years past. There has been more than passing interest in euthanasia, and it has been defined so that most knowledgeable people are aware of its meaning. One dictionary defines euthanasia as the act or practice of killing, for reasons of mercy, hopelessly sick or injured individuals. There is no implication of careless application or misuse of the practice. However, it is understandable that opinions and reactions will be divided.

Dr. Henry states that there is a "Euthanasia Society of America" with whom a local group wishes to maintain a cordial and cooperative relationship. It has also probed the medical profession. Several physicians responded strongly, indicating "gun-shyness" about the word "euthanasia", primarily because it implies an active, rather than a passive, role on the physician's part. This is understandable particularly in view of international reaction to the distinguished Sir William Osler's alleged recommendation for merciful termination of spent and unrewarding lives. Sir William was persecuted from many levels and directions. This event of early this century is long since buried in antiquity, but a revival of such philosophy could find a place once more in the permissive society of today.

Local organizers of a Euthanasia Society believe that such a project will be strongly dependent upon support of doctors who, said Dr. Henry, will be the ones involved in conducting patients through a "good death". He acknowledges the "semantic block" of many physicians to the term "euthanasia" and wonders whether the name of the society should be changed if—and only if—its purpose would not be lost in so doing. Perhaps "Good Death Society" would be more palatable to some.

However, let us defend the term euthanasia, a good clear established word, for what it means. Editorially we try not to use two or more words to convey meaning where one will do a better job. A tentative preamble to the organization is composed as follows:

> An organization of citizens who believe that withdrawal or denial of the right to die with dignity is a violation of an individual right which neither law, custom nor practice should be allowed to abridge or deny. The Society welcomes to its membership all who share its conviction that death can and should occur with dignity whenever it is within the power of man thus to direct it.
>
> It will promote public education and discussion of current scientific knowledge about death and dying, encourage examination and research into present legal practices, religious and cultural attitudes toward death and dying in our own and other societies. It will not engage in direct legislative efforts, although legislative proposals may grow out of its educational activities.

It is questionable that any organization of doctors will give official endorsement to this project, at least now or within the tangible future. However, we will be asked our opinion as individuals, and it is not unrealistic to propose that we shall be prepared with an answer. This should be based on careful thought and, hopefully, some deliberation. Letters to the Editor are suggested. They will be welcomed by us and appreciated by Dr. Henry and founders of a new organization whose motives are purely altruistic and humanitarian.

Fun With Words

COMMENT UPON WORDS and their usage always takes an editor's eye. An editorial entitled "On Burying Dead Words" by Colman McCarthy appeared in a recent issue of the *Los Angeles Times*. He stated that those who care about preserving our language look darkly on the strains to which English is being put, particularly in pursuit of votes. Politicians are not the only ones who abuse it with evasive

words, dull metaphors, and stale sentences. E. B. White, co-author of the desk-type classic *The Elements of Style*, notes that everyone has his own prejudices, set of rules, and list of "horribles". A connection exists between language and life. Whether writers, educators, and readers choose to abide by rules of English, the dictionary, or common usage, we would all be better off and refreshed if we would live without a lot of empty words and terms.

Mr. White goes on to name some of his "horribles" and they coincide with several that our own editorial columns have talked about occasionally for years. For example, "very" adds nothing to emphasis or style. The word comes from the Latin "verac" or "verax" meaning true or truthful. The proof of the word's deadness is pointed up easily by deleting it. There are plenty of other words awaiting last rites. Says Mr. McCarthy, "Newspaper offices are crowded with editors who next to their opinion will share nothing more eagerly than their list of forbidden words"; for example, the use of "presently" for "currently". Others are "virtually", "simply", which correctly means without frills or adornments—which is the last thought in the minds of "simply" users when they really mean definitely, solely, or emphatically.

Dead expressions as well as words should not be kept alive; for example, "a good deal". Think about that one, and how often do you use it when perhaps "much" would be better. Try using "a bad deal" and see how far you get with it; for example, "a bad deal of the time". "Well aware" is actually as empty as "bad aware" or "unwell aware". Try "bumpily rejected" instead of "flatly rejected". Love makes the world go round and God is love, it is said, but then we see it in ads for everything from dog food to automobiles and hear it in everything we do, want, feel, or use.

While on the subject of words which often "bug" an editor, nowhere do we see the use of the words "marked" and "markedly" as in medical literature. They are conspicuous in case reports, in comments especially of our younger colleagues before staff meetings, and in the copy of scientific articles sent in for acceptance or rejection. At times "marked" and "markedly" are used so frequently that they become glaring, and a reader wonders why these awkward words are chosen when there is a choice of others more effective, easier to hear and to read. The dictionary gives no stature to them. "Mark" is defined as a noun—a designation, trait, sign, characteristic, symbol, etc.; the verb, to set apart, designate, notice. "Marked" means having an identifying, distinctive or emphasized character, a noticeable distinguishing feature. However, "markedly" is mentioned only as an adverb, but without meaning. It would be interesting to jot down a list of words which, in our opinion, seem to be more palatable; for example, remarkably, strikingly, singular, exceptional, unusual, unique, peculiarly, extremely, excessively, greatly, exceedingly, maximum, particularly, especially, specifically. Next time you prepare a case report, try one of these or some other that may occur to you. And while you are at it, delete every last "very" and see if you agree that your meaning is thereby strengthened. Another meaningless word is "quite", and the article "the" is often overused, sometimes a dozen or more times on a single page of copy.

We are pleading for simplicity, fewer and better words to convey your meaning. Students of journalism are told to write simply, to avoid prolixity, defined as wordiness or verbocity in speaking or writing. "Prolex" is a good word meaning prolonged or drawn out; we don't see the word often, but it describes a lot of copy which comes to every editorial office. The art of writing has been specifically defined as the art of rewriting. When this is done, even many times, the result is invariably shorter, clearer, and stronger. Try it before sending in your next copy—and your editors and then your readers will praise you and hope for more of what you have to say!

Uterine perforation with a new intrauterine device

Colin Bailey, MD, Gillette, Wyoming

With the increased use of the "IUD", an awareness of the dangers in its use is timely.

THERE ARE PROBABLY about 40 types of IUD's available, some currently under investigation and others well established in clinical practice. The many shapes and geometrical configurations of the IUD's make a bizarre, artistic collection of man's ingenuity. This is a case report of the use of a so-called modern, superior IUD—the Dalkon Shield.

Fig. 1. X-ray film of pelvis showing an annular radiodensity with several fimbriated extensions projecting over the right side of pelvis. This configuration does not appear to lie within the expected location of the uterine body.

CASE REPORT

A white female, age 20, gravida 2, para 2, abortions 0, had a normal spontaneous delivery of a second child on May 10, 1971, after an uneventful prenatal course. The postnatal course was also uneventful. On July 15, about nine weeks postpartum, the patient had an intrauterine device, Dalkon Shield, inserted by a general practitioner in his private office. At the time of the insertion patient experienced somewhat more than the usual amount of discomfort. Four days later she was unable to find the string, and examination in the office revealed the absence of the thread of the IUD. On July 21, by x-ray of the pelvis the device appeared to be outside the uterus (Fig. 1). Hysterosalpingogram was done on July 23 and confirmed that the device was extrauterine (Fig. 2).

The patient was therefore admitted to the hospital. On July 26, at exploratory laparotomy the uterus was found to be retroverted second degree, and removal of the intrauterine device, suturing of the perforation in the anterior wall of the uterus, and incidental appendectomy were done. Postoperatively the patient had an uneventful course and was discharged on July 29, 1971.

Fig. 2. X-ray film showing contrast medium which has been injected into uterine cavity. There is filling of both tubes. The right tube seems patent. Near region of the right cornua there is projection of contrast medium which may be site of a perforation. An IUD in the right side of pelvis is extrauterine.

Discussion

Perforation of the uterus is obviously a serious complication in the use of the IUD. It usually occurs at the time of insertion although it is possible that migration of the IUD after partial perforation of the uterine wall may occur. Migration into the pelvic cavity is theoretically possible with any device, but it is a serious problem only with Birnberg bow. Of the 885 bow insertions reported by Hall,[1] the bow was subsequently found embedded in the myometrium in seven cases, lying free in the peritoneal cavity in five cases. When a perforation of a closed, small, ring-shaped IUD like the Birnberg ring occurs, immediate removal should be undertaken because of the danger that a loop of the intestine may slip through the ring and become obstructed. For this reason, the Advisory Committee to the F.D.A. and the American Planned Parenthood Federation advised against the use of the bow and all closed intrauterine contraceptive devices. Hysterography should be performed whenever the tail disappears and the loop has not been expelled, though prior gentle probing of the uterine cavity may determine whether the IUD is in place, as may a flatplate of the pelvis.

Dhall[2] performed hysterography on 48 asymptomatic women, demonstrating uterine perforation in eight; and in four in whom the migration from the uterus was incomplete, the Lippes loop was retrieved with a hook passed through the vagina. Chafi[3] recently reported a perforation of the uterus in which the uterus was actually retroverted, as in this clinical presentation. An unusual uterine perforation with a new intrauterine device, the Tatum, was reported by Lehfeldt and Wan[4] when two arms of the device penetrated the cervical canal at the level of the internal os.

Of 853 women receiving the first insertions of another new device, the Silicone shell loop in a report by Neisuler and Mishell,[5] three had perforation of the uterus, two of which followed insertions by a relatively inexperienced resident physician. None had demonstrable complications of the perforation; one patient had a laparotomy for removal of the IUD and the other two did not.

Hayes[6] reported that using the Saf-T-Coil in 200 private patients, only one of the three failures was due to perforation. The IUD was not found at delivery, but four months later at vaginal hysterectomy it was located behind the peritoneum. Wolfers[7] reported from Singapore a study in which there were 93 perforations. The frequency of occurrence was directly related to the training and experience of each physician. One general practitioner had a rate of one per 85 insertions, one house officer had one in 170 patients, two gynecologists had rates of 1:342 and 1:395, and the other doctors had none. The Cooperative Statistical Program (CSP) was developed in June of 1963 by the National Committee on Maternal Health to evaluate the various devices. The CSP figures show an average total incidence of perforations of four per 10,000 insertions.

The possible increase in the rate of uterine perforation may be related to the added stiffness of the device, and added care in insertion is recommended. However, the increased stiffness or firmness of the device may be the secret of its increased success in preventing pregnancy and in reducing the rate of expulsion and medical removal.

Summary

Perforation is the greatest danger in the use of the IUD, and it must be kept in mind at each insertion. The most important advantage of the device is that the patient is required to make only one decision on contraception. There is no contraceptive method that is acceptable, effective, and safe for all women. The basic skill required for insertion of an IUD, especially of the newer type, should be attained by attending proper training programs. •

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Laparoscopic removal of ectopic intrauterine devices

Stephen R. Kozloff, MD, Tibor Engel, MD, Dell Bernstein, MD, and Stuart Silverberg, MD, Denver, Colorado*

Laparoscopic removal of ectopic intrauterine devices is a feasible procedure, with less hospitalization and morbidity than laparotomy.

As use of the intrauterine device steadily increases, the clinician is called upon to diagnose and treat the problem of uterine perforation more frequently. The generally accepted incidence of uterine perforation is one in 2,500 insertions,[1] but the reports range from one in 20,000[2] to one in 115,[3] the highest incidence occurring with the Birnberg bow.[1,4] Table 1 describes 28 perforations in 16,338 insertions reported to the National Committee on Maternal Health.

Perforation usually occurs at the time of insertion rather than by erosion through the myometrium.[5] Since the consistency of the uterine wall is an important factor some authorities prefer to insert the IUD at six to eight weeks postpartum. However, other factors such as moderate dilatation of the cervix and likelihood of repeated pregnancy make insertion at four weeks an acceptable alternative outweighing the small increase in risk of perforation. If difficulty is encountered in the internal os, dilatation should be done with a urethral or Hegar dilator rather than forcing the introducer blindly with the possibility of creating a false passage.

*Dr. Kozloff is chief resident and Dr. Engel is assistant clinical professor in the Department of Obstetrics and Gynecology at the University of Colorado Medical Center. Drs. Bernstein and Silverberg are at the Department of Obstetrics and Gynecology of General Rose Memorial Hospital in Denver.

Diagnosis

If the patient presents with the complaint that she is unable to feel the strings of the IUD, what should be done in the asymptomatic patient, and how can ectopic position be determined? There are different technics for locating the ectopic IUD in the posterior cul-de-sac. The IUD may be felt in the uterine cavity with a uterine sound, and a Beolocator may be used to amplify this contact.[6] Several types of roentgenograms may be employed. The simplest is a supine abdominal film, but this is the least rewarding. In a study of 22 cases of uterine perforations with an IUD, this method only picked up one-third of the cases,[7] perhaps because the ectopic IUD frequently lies in either the anterior or posterior cul-de-sac. Serial x-ray examinations at different intervals in time may show a different position of the ectopic IUD, and this procedure was helpful in three of seven patients in whom the initial plain film was inconclusive.[7] With a uterine sound in the cavity, and if anterior-posterior and lateral films show the two objects lying next to one another, the IUD is probably in the uterine cavity. However, a partial perforation with IUD in myometrium cannot be ruled out. The most accurate diagnostic method is hysterography. With dye in the uterine cavity it becomes a simple matter to determine the position of the IUD, and by rotating the patient 45 degrees the position of the IUD in either the anterior or posterior cul-de-sac can be determined.

Complications of the Ectopic IUD

The most serious complication secondary to a perforated IUD is intestinal obstruction. This has only been reported with the closed ring or bow type devices.[8] A minor peritoneal reaction can occur with the presence of a foreign body in the peritoneal cavity, but this has never been known to be of serious consequence.

Laparoscopic Removal

A review of the literature to date indicates that laparoscopic removal has been done and reported on five different occasions.[9,10,11,12,13] In the Denver area in a recent six-month period five additional laparoscopic removals were done.

CASE REPORTS

Case 1. A 22-year-old female, Gravida 2, Para 2, had a Lippes loop† Size D, inserted at her six-week postpartum examination on January 7, 1971. From the time of insertion she complained of menstrual-like cramps but had no abnormal vaginal bleeding. On pelvic examination on June 25, the strings of the IUD were not visible. A plain film of the abdomen showed the IUD deviated to the left, and hysterography confirmed that the loop was in the posterior cul-de-sac. The patient underwent laparoscopy and removal of the IUD with the Cohen-Eder forceps, without difficulty. The site of perforation was not visualized at laparoscopy. She had an uneventful postoperative course and was discharged on the first post-op day on oral contraceptives.

Case 2. A 31-year-old Gravida 1, Para 1, was seen for evaluation of secondary infertility. Hysterosalpingography confirmed the diagnosis of Asherman syndrome and a Saf-T-Coil‡ was inserted into the uterus. Two weeks later the patient was seen, and the IUD strings were not present. Uterine sounding could not confirm the presence of the IUD within the cavity, and plain film of the abdomen showed the IUD to be lateral to L2. Using the laparoscope the IUD was found lodged in the omentum and was removed with the Cohen-Eder forceps. The patient subsequently became pregnant.

Case 3. A 20-year-old Gravida 1, Para 1, had a Dalkon Shield¶ inserted four weeks postpartum. Two weeks later the string was not felt and hysterogram confirmed uterine perforation. The shield was found in the right adnexal area at laparoscopy and was removed.

Case 4. A 26-year-old Gravida 3, Para 3, had a Birnberg bow inserted after the birth of her first child in 1967 and had it removed one and one-half years later. In September 1969 she delivered a 8-pound 5½-ounce male infant. Seven weeks postpartum a Lippes loop D was inserted, but she became pregnant soon thereafter and on August 20, 1970 was delivered of a 7-pound 5-ounce male. Abdominal x-ray showed the IUD in the right upper quadrant. Postpartum a Dalkon Shield was inserted. Although she decided against surgical intervention at that time, one year later the patient requested removal of the ectopic Lippes loop. Using the laparoscopic approach, the IUD was found adherent in the omentum but was removed without incident.

Case 5. A 25-year-old Gravida 2, Para 2, had a size D Lippes loop inserted at her six-week postpartum check in May 1970 in Nigeria, Africa. She complained of pain with the insertion and this continued intermittently thereafter. At a three-month checkup strings of the IUD were reportedly in place. Then in January 1971, after two months of amenorrhea she was again seen and had a positive pregnancy test, but the strings were not seen. One month postpartum x-rays showed the IUD to be extrauterine. She started on oral contraceptives and elected to have the IUD removed, although asymptomatic. At four months postpartum she was admitted to Colorado General Hospital and underwent laparoscopic removal of the IUD without complication and was discharged the same day.

Discussion

The technic of laparoscopy has been described by Steptoe.[14] Prior to surgical intervention by this method, x-ray confirmation of an ectopic IUD in the pelvis is mandatory. A closed ring device should be removed immediately even if the patient is asymptomatic. If an open loop or shield device is intraperitoneal, this may be removed electively as advocated by Esposito[8] or managed conservatively.[15] One of the authors (T.E.) is currently following a patient with a perforated Dalkon Shield in the area of the spleen. A common finding in four of five of the cases reported is that the time of insertion was less than eight weeks postpartum.

†Manufactured by Ortho Pharmaceutical Corporation, Raritan, New Jersey.
‡Manufactured by Cebesco Incorporated, Salt Lake City, Utah.
¶Manufactured by A. H. Robins, Richmond, Virginia.

TABLE 1

Type of Device	Insertions	Perforations	Rate per 1,000
Loops	6,538	4	0.6
Spirals	4,809	3	0.6
Steel ring	1,050	1	1.0
Bows	3,941	20	5.1

Table taken from: Burnhill, M. S., Birnberg, C. H.: Uterine Perforation with Intrauterine Contraceptive Devices. Am. J. Obstet. Gynecol. 98:135-140, 1967.

Although the ectopic IUD can also be removed at laparotomy or culpotomy, the laparoscopic approach has obvious advantages, namely the short stay in the hospital and the minimum postoperative discomfort to the patient. Most of the patients can be discharged on the afternoon of surgery or on the first postoperative day. This is an important consideration today when hospitalization is expensive and beds are at a premium.

Obviously not all perforated IUD's will be successfully removed by this technic. Should the IUD be firmly attached to the omentum, for example, or should the device not be found, another approach will have to be used. Yet it is certainly worth an extra few minutes spent in trying the laparoscopic approach in view of decreased hospitalization and lessened morbidity, if the approach is successful.

Summary

As use of intrauterine devices has increased, the number of perforations has also gone up. Comparisons of perforation rates of various types of IUD's are presented.

Diagnostic measures are discussed as is the feasibility of removal of perforated IUD's by laparoscopy. Five cases are added to the five previously reported by others. •

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Long-acting contraception

A brief report

Harry B. Tipton, MD, Lander, Wyoming

This is an interesting study of the use of a long acting injectable birth control medication used on 118 patients. It has limited use and the long-term effect is unknown. However, it most certainly provides some promise.

MEDROXYPROGESTERONE IS A potent progesterone that prevents ovulation and follicular maturation. When injected, it has a long action which has resulted in attempts to use it as a long-acting contraceptive. This report on 118 patients followed through 1,466 patient months indicates that this drug may be useful for a limited period of time in some patients.

Medroxyprogesterone acetate (Depo-Provera, Upjohn), hereafter referred to as MPA, is a short-acting progestin when given by mouth, but when injected has a very prolonged action. The package insert reports some androgenic effects, but the AMA Drug Evaluation reports no masculinization of a fetus. Indications for its use, by injection, are for habitual and threatened abortion, endometriosis, and treatment of metastatic carcinoma of the endometrium. Because it suppresses pituitary gonadotropin and so prevents follicular maturation and ovulation, it has also been used by some as a contraceptive.

In the United States, Seymour and Powell[1] reported using it in 752 patients up to 42 months with one method failure. Scrutchfield et al[2] reported 723 patients using it up to 21 months with one method failure. There were no episodes of thrombophlebitis in either group, and no effect on the fetuses of 47 patients who conceived after stopping MPA. Most of these patients conceived within one year after the last injection.

The author of this paper is a contract physician for a Maternal Health and Family Planning Clinic on the Wind River Indian Reservation. As is common in many such clinics, there are many patients who do not desire further pregnancy but who are poorly motivated to make steady use of a contraceptive. Many of these patients are grand multiparas and often are involved in unstable marriages and/or a low income situation. At the time some use of MPA was started in 1968, sterilization was not readily available through the Public Health Service. This policy has been changed as indicated later in this report.

Later other types of patients were added, including some from private practice. These were women who did not desire any more pregnancies but were not quite sure that they wanted sterilization or sterilization was not available to them. Some had difficulty remembering to take pills or had had trouble with IUD's. A number of the patient's husbands planned to have a vasectomy, but could not quite get it arranged.

The dosage was essentially the the same with all patients, 150mg of MPA injected every three months. Altogether 118 patients were included for a total of 1,466 patient months followed. This does not include patients who were receiving MPA for other reasons than contraception. The longest use was 54 months in the first patient to use

MPA. She has had a sterilization since this study was concluded. Ages were from 18 to 43, with the majority between 25 and 35 years of age. They had had from 0 to 15 pregnancies. Of the total number of patients 106 had had two or more pregnancies. Four were nulligravida; two of these were older and had decided they absolutely wanted no children; one patient had a very unstable marriage; and one patient had Gardner's Syndrome which is hereditary and Mendelian dominant.

At the time this paper is written 67 patients are continuing on MPA. Of the 51 who have stopped, 18 have had surgical procedures that resulted in sterilization either on themselves or on their husbands; four stopped because they desired pregnancy; five because of weight gain; five because of nervousness; two because of bleeding; and five for various other reasons. There are 12 patients who discontinued and whose reasons are unknown. Of the patients who continued there were a number who planned sterilization or procedures which would result in sterilization.

Primary side effect and the most important complaint from patients using this method of contraception was irregular or prolonged bleeding in 27. But only two gave this as a reason for stopping the method. Irregular bleeding after the first injection was common, but frequently stopped after eight to 12 weeks. The tendency then was to have infrequent and scanty menses. Prolonged bleeding could be controlled by the addition of estrogen, either by injection or oral administration. Injection of estrogen had to be given more frequently than the MPA injection. Oral estrogen had to be used on a cyclic basis, essentially as oral contraceptives are given. There was possibly one failure although this pregnancy probably occurred within one week after the first injection had been given and therefore may not be a true method failure.

There were nine pregnancies in patients who had discontinued therapy. Eight of these were normal term pregnancies with normal infants. One patient is pregnant at the time of this report with a normal pregnancy to date. Of the four patients who stopped because they desired pregnancy, two have had normal pregnancies and two still desire pregnancy. Of the other seven pregnancies, several have occurred in those patients whose reasons for quitting MPA were not known.

Two of the patients continuing on MPA had developed high blood pressure while on oral contraceptives. One of these became normal and had no further problem after several months on MPA. The other patient's blood pressure remained elevated and medical work-up indicated an essential hypertension.

Summary

Medroxyprogesterone acetate in a dosage of 150mg IM every three months is an effective contraceptive. It has had limited use and the effect of prolonged use is not known. It seems to offer a useful contraceptive method in some patients who feel reasonably sure they do not desire further pregnancy, in whom sterilization is not immediately practical or available, and in some patients who are poorly motivated to use other effective contraceptive methods. •

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Syphilis and gonorrhea

Laboratory tests for diagnosis and treatment

Gregory A. Brondos, MD, Casper, Wyoming

Today any physician may see venereal disease. Every physician must know the tests.

BECAUSE OF THE ALARMING increase of venereal diseases, it is imperative that physicians be aware of the tests available for diagnosis and followup care of patients with syphilis and gonorrhea. A discussion of diagnostic tests and their interpretation, as used in a community hospital, is presented.

Syphilis

In our hospital, two serologic tests for the diagnosis and followup care of patients with syphilis are used. One is the Venereal Disease Research Laboratory (VDRL); the other is the Fluorescent Treponemal Antibody Absorption Test (FTA-ABS). The latter is done by the State Health Department. Although direct demonstration of *T. pallidum* in material from a lesion remains the least equivocal method of diagnosis, most physicians do not have immediate access to a dark-field microscope.

The VDRL should be used as a screening test and as the test to follow response to therapy. For diagnosis our recommended uses of this test are the following: (1) If the test is positive, it should be repeated on a new serum sample; (2) if the repeated test is positive, it should be automatically quantitated and the results sent to the physician; (3) repeated tests with rising titers (of at least two dilutions) are most important diagnostic aids. The VDRL quantitative test is reported in the highest dilution at which the test specimen produces a positive result, i.e., 1:8 dils; (4) if a "false positive" is suspected, the FTA-ABS should be ordered.

If a patient is treated for syphilis, he should be followed with the VDRL test. Following adequate treatment for primary syphilis, the VDRL should be non-reactive in six to 12 months. In adequately treated secondary syphilis the patient should be non-reactive in 12 to 18 months in 90 to 95 per cent of cases. In syphilis of two or more years' duration the VDRL test results are variable.

The FTA-ABS test should be used to establish that the patient *has had* syphilis. It becomes reactive in early syphilis and stays reactive for many years. It *does not* indicate clinical activity or necessity for treatment. The test only tells if a patient has had syphilis sometime in his life. Another use of this test is to rule out "false positives". If the VDRL is positive (including quantitative values), a positive FTA-ABS confirms that a patient has syphilis. A negative test indicates that the patient is a "false positive". The FTA-ABS is reported as positive or negative.

To evaluate a patient's spinal fluid for syphilitic involvement of the central nervous system, the VDRL, total protein, and cell count should be done. A positive VDRL, increased total protein, and an increased cell count are indicative of CNS syphilis. A colloidal gold test is of little use and, in our opinion, has no practical application in the diagnosis of syphilis. It and the Kahn test should be relegated to the historical archives of the medical laboratory. The VDRL is reported as Reactive (R), Weakly Reactive (WR), and Non-Reactive (NR).

Gonorrhea

Neisseria gonorrhea is a delicate organism and should be treated as such. To identify it, material for both a gram stain and culture should be obtained. In females the cervical canal and rectum should be swabbed. In males the urethral discharge is the sample of choice. A slide should be prepared for gram staining. The other specimens should be put on Thayer Martin media or Transport media and sent to the laboratory. In preparing the slide, gently roll the swab across the glass slide; vigorous rubbing can destroy white blood cells and make correct interpretation difficult or impossible. If no Thayer Martin media or Transport media are present, the specimen should be taken directly to the laboratory for immediate culture.*

A positive gram stain is reported as "gram negative intracellular diplococci consistent with *Neisseria gonorrhea*". A positive culture report is "*Neisseria gonorrhea*".

Summary

The use of the VDRL and FTA-ABS test of the diagnosis and followup study of syphilis is outlined. The sites of sampling, preparation, and method of reporting of positive findings for *Neisseria gonorrhea* are given. The methods outlined have proven satisfactory in the community hospital setting. •

*The CDC is advocating the use of Transgrow medium, or the ones mentioned above. We are currently evaluating Transgrow medium in our laboratory; as of this printing, we have no opinion on its superiority over Thayer-Martin medium.

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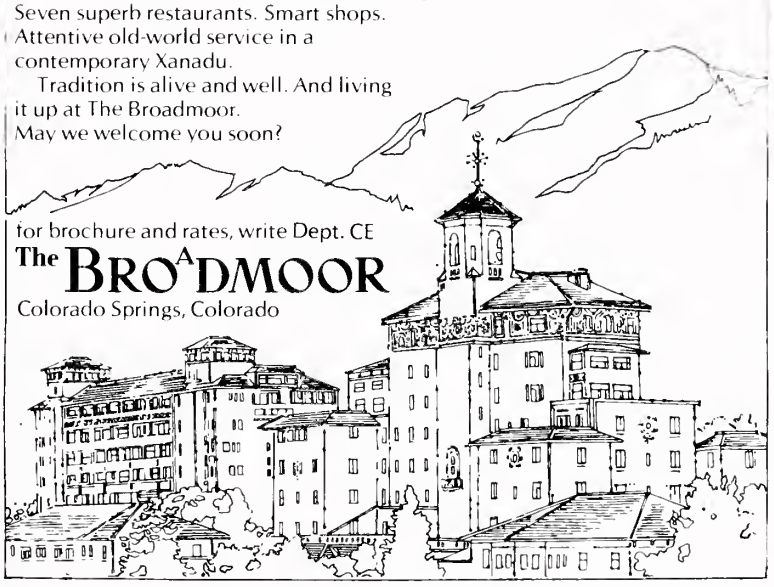

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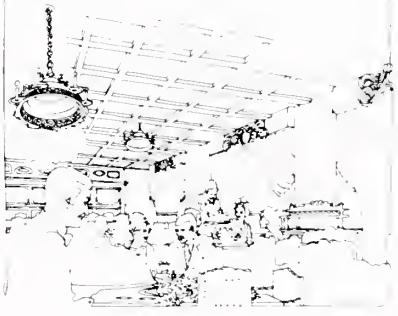

Medical students and psychiatry courses

Harold Wakefield, MD, Stephen Landau, MD, and Sidney L. Werkman, MD, Denver, Colorado

In this paper the authors have described the clinical psychiatry curriculum at the University of Colorado Medical School, the goals around which the Department of Psychiatry has attempted to build this curriculum and, most importantly, the responses of medical students to the experience.

DOES THE MEDICAL STUDENT find his undergraduate experience in psychiatry relevant to the later clinical practice of medicine? What goals are offered him by his teachers and to what extent are those goals achieved? The staff of the Department of Psychiatry at the University of Colorado School of Medicine has been studying these questions with the hope that answers to them will influence teaching programs in a way that will better prepare students to be effective in dealing with psychological problems in their clinical practices. We hope, also, that this paper will acquaint physicians in the Rocky Mountain area with our current teaching programs in psychiatry and initiate continuing discussion about the training needs for physicians.

Goals

The broad goal of the psychiatric curriculum is the preparation of students for the practice of medicine in a fashion that will facilitate the recognition of psychopathologic conditions in patients and their families and the recognition of psychopathogenic situations. It is felt that the psychiatric training program should enable the physician to treat many psychological problems concomitant with physical illness and that it should facilitate consultation with mental health workers, referral of patients for psychological problems, and re-acceptance of psychiatric patients after they have undergone psychotherapy.[1,2,3] The program is designed to bring the student to an understanding of the natural history of psychological disorders and allow him to become familiar with concepts of care, adaptation, recovery, and residual deficit.

Further, there are "internal", or intrapsychic, goals held for students, and an attempt is made to help them become more knowledgeable and accepting of themselves so that they might interact psychotherapeutically with patients without incurring undue anxiety or disabling defenses.

Clinical Curriculum

It is believed that these goals may best be approached through clinical experience, i.e., through intimate experience with patients which is accompanied by intensive personal supervision. Thus, the students' time during the clerkship is primarily occupied in clinical settings, divided between work on the inpatient services of either Colorado Psychiatric Hospital or the Denver Veterans Administration Hospital and the Outpatient Services (including the Adult Clinic, Child Clinic, and the Emergency Psychiatric Service). See Table 1.

TABLE 1
STUDENTS' TIME ON PSYCHIATRIC CLERKSHIP
(in per cent)

Inpatient Service	60
Seminars and Didactic Lectures	15
Child Psychiatry	10
OPD Cases	5
Emergency Room	5
Community Psychiatry	5

Inpatient Service. Each student spends approximately 60 per cent of his time on one of several inpatient psychiatric wards. The student's work with patients is considered primary, though the extent to which he assumes primary responsibility for patients varies from ward to ward. Each student works with a psychiatric resident on his ward, the resident providing personal supervision of his work. Also, each ward has "Ward Community" meetings, group therapy sessions, teaching conferences, and staff meetings; these are available to the student although there is great variability as to the students' attendance and participation.

The students' responses to their inpatient experience, as seen through informal comments, seminar discussions, work in supervision, and research questionnaires indicate that several factors determine whether they view their experience to have been positive and productive. Student satisfaction with the inpatient experience is seen to be highly correlated with the quality of the relationship developed with the individual resident supervisor and, to a lesser degree, with their ward chiefs. Students who worked on wards where active attempts were made to engage and include them tended to feel that their experience was useful. Further, and most importantly, students who had been actively involved in patient work, and who had assumed direct responsibility in patient care, responded more positively to the experience.

Outpatient Service. The adult outpatient services, i.e., the Adult Psychiatric Clinic and the Emergency Psychiatric Service, are found to be the experiences most highly valued by the medical students. In the Outpatient Clinic, each student sees a patient at regular intervals throughout the duration of his rotation on psychiatry. The medical student is the patient's first psychiatric contact and the student assumes primary responsibility, dealing individually with the patient. The situation is unique for both patient and student in that the patient is seeing his first psychiatric doctor and the doctor is seeing his first psychiatric patient. The student, as he assumes this clinical responsibility, is closely supported by intensive, personal supervision (usually an hour with a senior resident for each hour he spends with the patient), didactic lectures, and seminars dealing with psychiatric interviewing.

This patient responsibility, though it fosters some apprehension, engages the student in a dramatic way. Students, though ill at ease in an unfamiliar setting, generally feel a drive to actively master the situation. The one-to-one teaching setting of individual supervision serves the student well at such a time. It provides an intense setting for learning, flexible in meeting the individual student's needs at a time when the student is particularly receptive.

The student's work with his patient is the focal point around which teaching efforts are organized. Attempts are made through individual supervision, seminars, and lectures, to correlate the fund of psychiatric information which is being presented with the clinical work in which the student is involved. A consistent effort is made to present clinical psychiatric concepts and technics to the medical student in such a way that they are understandable in terms of his medical experience thus far and relevant to his future practice as a physician. To this end particular emphasis is placed upon the teaching of the emotional response to organic disease, the somatic expression of emotional difficulties, the importance of family interactions to the individual, and the emotional reaction of the family to the illness of one of its members.

A brief case example from the Outpatient Department, a "good result" in terms of the patient's, student's, and supervisor's experiences, provides an illustration of what happens with students in the clinic when things go well.

CASE REPORT

A 60-year-old married man was referred to psychiatry from the Neurosurgery Clinic, where he was being evaluated for cervical pain. He had been seen in the neurosurgical clinic by a medical student, a young man who had recently completed his psychiatric clerkship, who believed that the man was somewhat depressed and that there was an emotional basis to his complaint. The student in the psychiatric clinic learned that the man's wife had become an invalid in the recent past, somewhat by choice in that she refused to seek and follow medical advice for a condition that might have been significantly improved, and that she had become unbearably de-

manding of him. The patient had given up his lifetime practice of weekend fishing at her demand, and he was working less frequently (he was a carpenter and loved his work), feeling that it was necessary to stay with his wife as much as possible. Though the patient was a man who was quite intolerant of angry feelings in himself, he became aware of, and accepting of, the resentment that he was feeling toward his wife in response to her unreasonable demands. As the patient worked on with the student, the "pain in the neck" was more accurately localized. He spoke more and more directly of his feelings toward his wife and his complaints of cervical discomfort subsided. At the time that treatment ended, the patient had become able to place some reasonable limits on his wife's demands without feeling guilty and had arranged to resume his fishing and to return to work on a full-time basis. The patient did not wish to transfer to another therapist, nor did he wish to make further appointments in the Neurosurgery Clinic.

The ability of medical students to function as effective psychotherapists has been impressive. Recent outcome studies in the Adult Psychiatric Clinic (involving 107 patients) indicated that 74 per cent of the patients treated by students in brief psychotherapy were significantly helped. Further, 52 per cent of the patients in this particular sample group required no treatment after the four to six weeks of therapeutic work with the students; the remaining 48 per cent of the patients in the sample group were transferred for further treatment with another therapist at the end of the students' rotation. Results of these outcome studies are summarized in Table 2.

TABLE 2
RESULTS OF STUDENT TREATMENT OF OUTPATIENTS

Number of cases treated by medical students during sample period	107
Number of patients considered to be significantly helped	74%
Number of cases terminated after brief therapy	52%
Number of cases transferred for further therapy	48%

The Students' View

Students were asked to rate the various experiences of the clerkship as to the projected usefulness for medical practice, using a six-point scale ranging from "very useful" to "minimally useful". Results are shown graphically in Fig. 1.

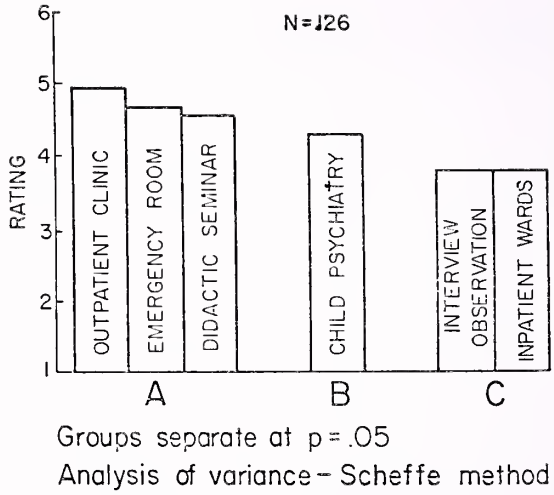

Fig. 1. "Usefulness" for medical practice.

Results of these ratings show that students rate outpatient work, emergency room experience, and a weekly didactic seminar (in which such topics as clinical aspects of child development, character types, syndromes, psychoactive drugs, and sexuality are discussed) highest in projected usefulness for the practice of medicine. Child psychiatry is next, and one-way screen observation and inpatient work rate the lowest. These groups separate at a greater than $p=.05$ probability using The Scheffe Method for calculating analysis of variance. From the ratings, and from discussion with students and their supervisors, we tentatively conclude that students value most highly experiences that present them with direct patient involvement and responsibility. For example, they consistently rated the outpatient clinic and emergency room experience, where they perform as primary physicians or therapists, highest in "usefulness". Further, experiences that are closest to the model of their usual functioning as student physicians—in the medical model — are most congenial to them. In addition, students are most comfortable when a patient comes into "their" office, anxious and seeking help. Students apparently appreciate the structure and data given them in didactic seminars which explicate and supplement the major emphasis on patient-student involvements.

To assess student opinion about changes in themselves (internal goals) in regard to

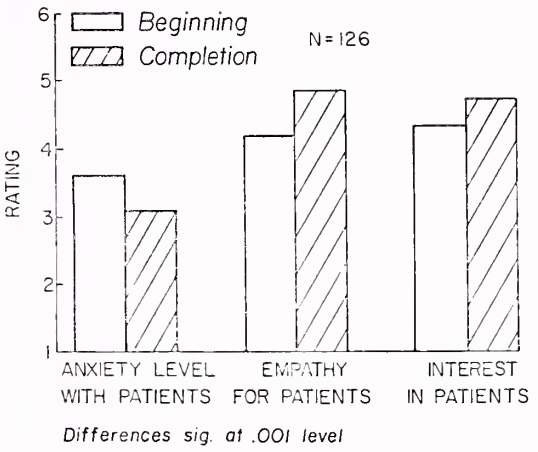

Fig. 2. Students' views of psychiatry clerkship.

psychiatry and psychiatric patients during the clerkship, we asked them to rate the following items anonymously at the start and conclusion of the six-week clerkship. These items are: Anxiety Level with Psychiatric Patients, Feelings (or Empathy) toward Patients with Psychiatric Problems, rated from "positive" to "negative", and Level of Interest in Psychiatry, Psychiatric Knowledge and Techniques. We do not show students their original ratings when they make their final ones.

In all three dimensions there was a difference statistically significant at a greater than .001 level of confidence using a two-tailed t-test. Anxiety level decreased, empathy or feeling for psychiatric patients increased; interest in psychiatry increased by the end of the clerkship.

Though we must emphasize that we are tapping opinion rather than observation, these results, when combined with supervisors' impressions and statements by students, do suggest that we are approximating the clerkship's internal goals centering on helping the student become more clinically identified with the field of psychiatry and with psychiatric patients.

To gain further insight into the importance of the clerkship for students we ask the following question at the conclusion of the clerkship: "What has been the single most significant experience or aspect of the psychiatric clerkship?" All answers are made anonymously. Approximate per cent weights of responses are listed in Table 3.

TABLE 3
STUDENT'S MOST SIGNIFICANT EXPERIENCES OF THE CLERKSHIP
(in per cent)

Individual Supervision (One-to-one supervision by a resident)	30
Sensitivity Group	15
Patient Crises (A patient's suicide attempt, a patient's husband's call for help, etc.)	10
Self-examination	10
Positive Patient Movement ("Being on my own with a patient and feeling good about it—for him and me.")	20
No Significant Experience	10
Miscellaneous	5

Discussion

A number of generalizations can be deduced tentatively from these data:

(1) Close, responsible involvement with patients is a most highly prized aspect of the psychiatric clerkship. This conclusion is based on the high ratings given the Emergency Room and the Outpatient Clinic experiences. In both of these services the student is the primary physician and, even though students report that these experiences mobilize a great amount of anxiety, the high ratings given them suggest their importance for learning.

(2) The total immersion in patient care offered by this kind of clerkship offers the student an opportunity for involvement and informed self-searching through the use of supervision that is rare in other aspects of medical education. The fact that at least 65 per cent of students rate some aspect of intimate contact with patients or self-examination as the most important experience during the clerkship supports this view.

(3) Supervision by residents is an effective method of increasing students' involvement in psychiatry. Perhaps the issue is merely a contemporary historical one, but these data and our impressions suggest that students look for lateral or peer supports in teaching experiences even when more experienced professionals are available to them. Students seem to feel that residents are closest to the concerns and needs of medical students; our successful use of group sessions for students, run by residents, is further evidence in this direction.

Summary

Responses from students indicate that they believe direct patient involvement and "medical model" responsibilities will have the greatest usefulness for the later practice of medicine. In a program organized around the concept of "experiential teaching", students showed significant increases of empathy and interest in psychiatry and psychiatric patients, and significant decreases in anxiety by the end of their clerkship.

An attempt is being made to tailor the course in clinical psychiatry to the needs of today's physician, and it is felt that the consumer himself should have an important voice in planning. Evaluation of the medical students' responses is felt to be a useful means of assessment of the teaching program; the students' view of their experience, in terms of its usefulness for the practice of medicine, can be used to structure teaching more effectively. Another consumer resource, untapped as yet, is the practicing physician. Viewing the medical school course in psychiatry from the vantage point of clinical experience, he could offer perhaps the most useful comment as to the relevance of the current psychiatric course to clinical medical practice. It is hoped that a productive dialogue might be initiated with physicians in the Rocky Mountain area and that the experience of the practicing clinician might be utilized in the ongoing evaluation of the psychiatric teaching program. •

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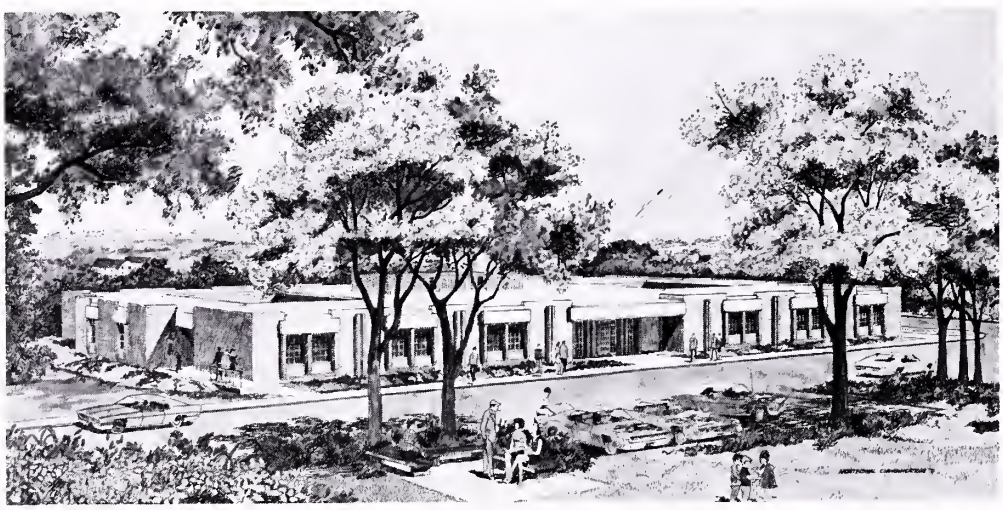

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Regional newborn care*

L. Joseph Butterfield, MD, Denver, Colorado

EVERY COMMUNITY OR geographic region in this country must develop programs to "identify the high-risk pregnancy in sufficient time to allow for delivery at those hospitals which are staffed, equipped, and organized for optimal perinatal care."[1] In addition, programs must be developed for "early recognition of high-risk infants not identified during the prenatal period, which provide for the prompt transfer of a distressed infant to a more appropriately equipped facility when indicated. Arrangements for transport should be an integral part of the planning for community centered programs."[1]

This statement of policy for the improvement of maternal and infant care was developed by the American Medical Association Committee on Maternal and Child Care during 1969 and 1970 and accepted as policy by the AMA House of Delegates in June of 1971. The executive boards of the American Academy of Pediatrics and the American College of Obstetrics and Gynecology have endorsed the statement.

At about the same time a statement by the Joint Committee on the Regional Approach to Reproductive Care representing the Society of Obstetricians and Gynaecologists of Canada and the Canadian Pediatric Society asserted that, ". . . the regional concept promises the best approach to the improvement of reproductive care . . .".[2] Anne Somers in a discussion of directions in health care says: "The concept of grouping community health facilities around the community hospital and the latter's affiliation with a regional teaching hospital or medical center has been advocated by health care authorities for three or four decades. Such a development was implicit in the report and legislation that led to the Regional Medical Program in 1965. It was explicitly recommended by the National Commission on Community Health Services in 1967."[3]

In late 1970, a new group was formed in the Midwest, called the Great Plains Organization for Perinatal Health Care. The organization consisted of obstetricians, pediatricians, nurses, and public health workers with an interest in improving the health and health care of the mother and her newborn. The six-state membership proposed a network of newborn centers with a strong emphasis on education. A pilot program in Wisconsin had resulted in a drop in neonatal mortality from 16 to nine per 1,000 live births among the participating institutions. A unique feature of this program was the active involvement of the private practice sector and the community hospitals in an interrelating system for the early recognition and improved management of the sick newborn.[4]

These simultaneous dedications to better organization of existing resources can be expected to have a major impact on the styles of maternal and child health practices in the seventies. Perhaps more important than the recognition of the need to conserve institutional energy is the shift to a receptivity of different ways for health units to relate.

Regional Newborn Centers

The idea of regionalizing newborn care is not new. The cradle of such an approach to care is just a few miles to the south at Michael Reese Hospital, where Dr. Julius Hess opened the first premature infant center in this country in 1923. For the next 40 years premature centers sprang up in all parts of

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the nation. New ideas about the causes of prematurity, the special medical and nursing needs of small babies, and the later effects of early birth were taught in workshops and special courses. During the sixties several centers expanded their interest to include the sick newborn regardless of his maturity or the nature of his medical or surgical problem. These regional Newborn Centers quickly caught the interest of young doctors and nurses as a means of reducing the neonatal mortality while improving the quality of the survivors.[5]

Regional newborn care as it is developing in Colorado and in many other states might fit into what Ray E. Brown called "a matter of arrangements". We are still at a colleaguial level but moving toward a more formalized yet flexible organization of hospital services and health professionals. It soon becomes apparent to the participants that selected maternity cases can be detected in advance and the care shared with a regional center, to the improvement of mother and newborn care and to the betterment of perinatal performance for that community hospital and the region.

From a professional organizational viewpoint, the local hospital staff is frequently the same membership as the county medical society. It might be more logical for that hospital staff to function as the organizational module of the state medical society. Advantages to this shift to a hospital staff base would include improved staffing of medical society programs, realistic relationships with the core health facility in the region, and the improvement of the linkage with the hospital staffs of the regional referral hospital for service, educational, and manpower needs.

"Just as the hospital medical staff organization currently controls and coordinates medical practice and hospital service related to inpatients, by the end of the seventies, it will perform the same function with respect to ambulatory patients in clinics, emergency units, health centers, and in the office of private practitioners. The efforts of hospitals and private practitioners will be more and more closely coordinated to achieve comprehensive programs of medical service."[6]

The Region

At The Children's Hospital in Denver, a Newborn Center to serve the Rocky Mountain region and the western Great Plains region, was opened in 1965.[7] This Center set out to coordinate the existing facilities and services at The Children's Hospital with available community services into a system that could respond to the newborn in need of special care throughout the region. As a matter of definition, the egg-shaped area within a series of points that fall halfway between Denver and the next existing or potential newborn center was conceptualized and called our *region of responsibility.*

This is not a formally recognized region by any state or federal agency, but for practical purposes, it is quite similar to the trade area that centers in Denver. It describes a reasonable area in which people have done their "doctoring" for years based on professional or self-referrals.

Coning down on the metropolitan region, a report by the Colorado National Bank entitled, "The Five Counties of Denver," sets up the Denver "SMSA" or Standard Metropolitan Statistical Area, which has grown to a population of 1,280,000, an increase of 32 per cent since 1960. The Denver SMSA includes 37 incorporated cities and towns that stretch out over a 3,660-square-mile tract at the base of the Rocky Mountains. This is the fifth fastest growing metropolitan area in the United States among 25 such service areas. By 1980, another 30 per cent increase is projected.

The age mix has shifted since 1960, when 42.5 per cent of the population was under 25, to 48 per cent in that age bracket in 1970.[8] These regions and their characteristics must be a subject of constant study and planning for action.

The Newborn Center—The Team Approach

At Children's Hospital, a previously designated but unoccupied premature infant area, a handful of interested nurses, and a supportive medical and administrative staff were the critical mass in launching the Newborn Center. A team approach to care included a high-quality house staff of interns, residents, and fellows, plus consultants in the

subspecialty areas. The private physician was encouraged to bring the sick newborn from the community hospital to a Newborn Center with its organization, equipment, and staffing for concentrated care. Protocols for care evolved in an effort to standardize care and to allow better evaluation.

Social workers and public health nurses became an integral part of the team and are included in patient conferences and teaching or work rounds. A clinical specialist in nursing is a valuable staff person to integrate advances in patient care into teaching programs and to continually monitor the level of nursing care at the cribside.

A pediatric nurse practitioner who had been a staff nurse in the Newborn Center returned to bring a new dimension in nursing to the Center. She divided her time between working with families at the beginning of care or near the time of going home. She helped the mother understand the problem of her baby, and she helped the anxious mother assume the limited, then increasing care of the baby before discharge. Some time was devoted to home visits to gain firsthand follow-up information about a baby and to encourage families to express any feelings, pro or con, about the manner in which they were received at Children's Hospital. Another portion of her time was devoted to working with the doctors in the transport process, during admission, or at the onset of intensive care procedures. As an extra, and experienced hand, she gained the respect of the doctors and brought this meaningful experience back to the parents in placing the newborn's problem into perspective.[9] A six-month evaluation of the nurse practitioner in the Newborn Center has attracted the support of a sensitive nursing director and a new job description has been written.

Financing a new and unproved position to improve patient care is not easy. We were blessed with the partial support of an appreciative family who have memorialized their deceased son. "The Little John Fund" is dedicated in part "to extend and support the practical expression of that humane and compassionate spirit through specific innovative programs not otherwise possible."

Transport and Communication

A variety of transport systems for premature and sick newborns has been operational in Chicago, New York, and other large cities for years. A state-wide transport program has been developed in Arizona by the joint effort of the State Health Department and private hospitals.[10] Recent developments have stressed the inter-hospital care of the newborn after stabilization at the hospital of birth. Dr. Baker in Iowa refurbished a van with intensive care equipment including limited laboratory capability. In San Francisco, Dr. Blackmon has developed a specially fitted van which provides inter-hospital care within a 100-mile radius. A number of newborn infants have been flown throughout the country in a hugh Air Force C9 airplane fitted out as a flying intensive care unit. Such innovative transport capabilities are essential to the regional care concept and need both stimulation as well as critical evaluation.

We installed a direct telephone link to our surface transport system and to four of the 20 obstetric services in the metropolitan area. This perinatal hotline allowed two to four seconds of response time between the elements of the regional newborn care system. Incoming calls alerted the Newborn Center to perinatal problems. Prompt contact with the transport system triggered an action program and allowed inter-hospital communication. Outgoing calls on the hotline facilitate reporting of patient condition and completion of perinatal histories. A speaker phone attachment permits broadcast of conversations with referring physicians, inquiring mothers, or consultants, during long distance teaching sessions.

The surface transport of a sick newborn within the Denver metropolitan area is accomplished in a custom-fitted mobile emergency room on a Clark Cortez frame. The AID vehicle is fully equipped and staffed by two medical technicians who are checked out on the infant transporters in use and who are regularly included in case review of previous transport patients. Depending on the condition of the baby, a doctor and nurse team takes part in the transport or inter-hospital care of the newborn baby.

When babies are referred from greater distances, they may travel in a local ambulance, in a variety of transporters, in charter aircraft, or occasionally on a regular scheduled airline. For the past 18 months the helicopter has offered a new capability for emergency medical evacuation in five areas of the United States. Fort Carson is one of the five Army and Air Force bases participating in the Military Assistance to Safety and Traffic Program (MAST). The 78th Medical Detachment at Fort Carson is in charge of helicopter operations, working with the Colorado Air National Guard and the Colorado State Patrol to coordinate the emergency helicopter flights. Since August 1970, the MAST program has evacuated 226 persons from all parts of Colorado and neighboring states to Denver hospitals for special care. At least 30 of these missions have flown sick newborns to Children's Hospital, Fitzsimons Army Hospital, and the University of Colorado Medical Center.

The Newborn Center at Children's Hospital placed an infant transporter on loan with the MAST program and assisted in the fitting and evaluation of the transport. (The transporter was loaned in memory of the late F. Craig Johnson, MD, a leading pediatrician on the staff of The Children's Hospital for many years.) After 17 months of the trial program, authorities at Fort Carson have announced that the MAST program will be continued and expanded to other Army and Air Force bases in addition to the trial areas. This is particularly good news to the 91 Colorado hospitals with obstetric services, since about half of the sick newborns who need intensive care are born without advance warnings of trouble.

Among the vast reaches of Colorado, babies are delivered in 44 of the 63 counties. But only nine counties have a hospital which reported 500 or more live births in 1970; 20 hospitals reported 100 to 499 live births, and 15 hospitals reported less than 100. The MAST program provides a new dimension in regional transportation.

In 1965, 512 infants were referred to the Newborn Center, from Denver, other Colorado communities, and surrounding states. This number increased each year to a peak of 795 referrals in 1970. Since then a coordinated effort with a similar unit at the University of Colorado has leveled the census of the affiliated units by cross-shunting of outside referrals according to bed availability and staff stress.

Operational Designs

Patients are usually admitted by the private physicians or to an attending staff physician. All patients are managed with a team approach and the free utilization of subspecialty consultants. Patient care is intensely intertwined with cribside teaching by and with all members of the health care team.

Weekly multispecialty conferences review patient care, especially respiratory management. Monthly meetings of the Perinatal Service are alternated between Children's Hospital and community general hospitals to encourage free discussion and obstetric input at a community level.

Regular visits to hospitals in the region include review of the past year's perinatal activity by comprehensive health planning regions and detailed reviews of referrals from that hospital. Resuscitation practices, first-hour care, and routine nursery practices are reviewed with doctors and nurses. Perinatal care workshops for nurses are sponsored on a semi-annual basis in cooperation with the Nurses Association of the ACOG and the National Foundation of the March of Dimes.

Regional Differences in Neonatal Mortality

There are now 19 hospitals delivering babies in the metropolitan Denver area. In 1971, there were 24,714 live births in these hospitals. The transport rate per 1,000 live births was 28. The neonatal mortality rate in the metropolitan area was 12.6/1,000 live births. Outside the metropolitan five counties, there were 17,848 live births in 1971. A total of 94 were referred to one of the two Newbon Centers for a transport rate of 5.7. The neonatal mortality rate for this group was 18.1/1,000 live births.

This difference between neonatal mortality rates among hospitals that utilize regional newborn centers and those that do not,

or are unable to, is consistent with the 1967 and 1968 Quebec Studies of neonatal mortality and to more recent experiences in Arizona, Wisconsin, and New Jersey.

Quality of Survivors

What about the outcome of the survivors of intensive care? The early studies of Knoblock,[11] Drillien,[12] and Lubchenco,[13] were grim reports with 50 to 70 per cent of small premature infants displaying severe abnormalities in growth and development. Recent follow-up studies by Lubchenco,[14] Stahlman,[15] and Rawlings[16] suggest that outcome is greatly improved. High-risk infants offered more aggressive therapy in the form of intravenous fluids, thermal protection, and respiratory support are performing at higher levels in neurologic and developmental studies.

While the pessimism of the past has lifted somewhat, there is widespread conviction that evaluation studies must be built into intensive care programs as an on-going mechanism of monitoring morbidity and as a feedback mechanism.

Unmet Needs in Newborn Care

To many in the neonatal field there have been some grating injustices operating in health practices. It is time that the newborn be recognized as a full-fledged patient, an individual with the same right to a standard of care as the patient in coronary care. Since the enactment of Medicare in 1965, hospitals providing such care must toe the line set by the Joint Commission on Accreditation of Hospitals. Perhaps the JCAH will take a harder look at the obstetric and newborn services before too long. It is only reasonable that the American Academy of Pediatrics, the American College of Obstetrics and Gynecology, and the American Academy of Family Physicians join with their nursing and hospital colleagues in drawing up acceptable minimal standards for maternal and newborn care. The Academy of Pediatrics Committee on the Fetus and Newborn has already met this challenge in their 1971 publication of "Hospital Care of Newborn Infants". Such standards allow the separation of institutional and personal pride from what is best for the patient.

Insurance carriers which exclude the newborn for 14- to 90-day periods can offer cheaper obstetric coverage but subtly force young parents into a risky game of perinatal roulette. In the Brathwaite Bill, the State of California has declared that no new or renewed health insurance offering can exclude the newborn from coverage.

For the past two years a member of our consulting staff has been visiting newborn centers from coast to coast. Seventeen of these regional, urban, and state centers were held up to 12 arbitrary categories. The categories related to staffing, equipment, and organization.[17] As the surveyor was a basic scientist in physics, it was not surprising that the first category for comparison was nursing in terms of ratio of nurses to patients. Other categories included direction and organization of the unit, education, relationships with supportive services, equipment availability, and utilization and outreach capability, i.e., transport system.

While one can argue with the categories selected and the weighing thereof, such a system of evaluation of hospital service against a set of reasonable criteria will be necessary in planning for new units as well as evaluating existing facilities.

Rising Expectations

In 1928, Denver was one of 25 cities in the United States with a population in excess of 250,000. Ranked by infant mortality, Denver stood at the bottom of the list. Dr. Frank Gengenbach, a pioneer Colorado pediatrician and the first chairman of the Department of Pediatrics at the University of Colorado School of Medicine, published a thorough study of that deplorable performance in the first volume of the *Journal of Pediatrics* in 1933.[18] It was commonly suspected that tuberculosis was a contributing factor, but only seven infant deaths in 1928 were due to tuberculosis. Dr. Gengenbach's study of 5,330 births and 405 infant deaths revealed that the prenatal care, maternal age, poverty, and poor housing were strong influences in the high infant mortality rate. Mothers with no

prenatal care and from low economic circumstances had babies with five to ten times greater infant mortality rates.

Thirty years later, a program of neighborhood health centers was instituted in the same neighborhood. In the eight years since, the gap has narrowed. The infant mortality in Denver is now below the national average. There is no longer a significant difference in infant mortality between the highest and the lowest census tracts ranked by per capita income, and Denver has moved up to the top among large cities in the infant mortality rankings.[19,20]

Perhaps our efforts in regional newborn care will affect the mortality and the aftereffects of neonatal illness in the same positive way. We should know in a few years. •

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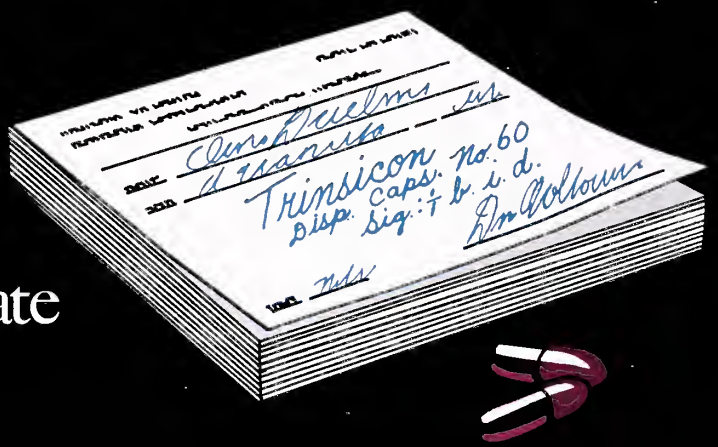

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Vitamin B_{12} with Intrinsic Factor—When secretion of intrinsic factor in gastric juice is inadequate or absent (e.g., in Addisonian pernicious anemia or after gastrectomy), vitamin B_{12} in physiological doses is absorbed poorly, if at all. The resulting deficiency of vitamin B_{12} leads to the clinical manifestations of pernicious anemia. Similar megaloblastic anemias may develop in fish tapeworm (*Diphyllobothrium latum*) infection or after a surgically created small-bowel blind loop; in these situations, treatment requires freeing the host of the parasites or bacteria which appear to compete for the available vitamin B_{12}. Strict vegetarianism and malabsorption syndromes may also lead to vitamin B_{12} deficiency. In the latter case, parenteral therapy, or oral therapy with so-called massive doses of vitamin B_{12}, may be necessary for adequate treatment of the patient.

Potency of intrinsic factor concentrates is determined physiologically, i.e., by their use in patients with pernicious anemia. The liver-stomach concentrate with intrinsic factor and the vitamin B_{12} contained in two Pulvules Trinsicon provide 1½ times the minimum amount of therapeutic agent which, when given daily in an uncomplicated case of pernicious anemia, will produce a satisfactory reticulocyte response and relief of anemia and symptoms.

Concentrates of intrinsic factor derived from hog gastric, pyloric, and duodenal mucosa have been used successfully in patients who lack intrinsic factor. For example, Fouts *et al.* maintained patients with pernicious anemia in clinical remission with oral therapy (liver extracts or intrinsic factor concentrate with vitamin B_{12}) for as long as twenty-nine years.

After total gastrectomy, Ficarra found multifactor preparations taken orally to be "just as effective in maintaining blood levels as any medication that has to be administered parenterally." His study was based on twenty-four patients who had survived for five years after total gastrectomy for cancer and who had been taking two Pulvules Trinsicon daily.

Folic Acid—Folic acid deficiency is the immediate cause of most, if not all, cases of nutritional megaloblastic anemia and of the megaloblastic anemias of pregnancy and infancy; usually, it is also at least partially responsible for the megaloblastic anemias of malabsorption syndromes, e.g., tropical and nontropical sprue.

It is apparent that in vitamin B_{12} deficiency (e.g., pernicious anemia), lack of this vitamin results in impaired utilization of folic acid. There are other evidences of the close folic acid-vitamin B_{12} interrelationship: (1) B_{12} influences the storage, absorption, and utilization of folic acid, and (2), as a deficiency of B_{12} progresses, the requirement for folic acid increases. However, folic acid does not change the requirement for vitamin B_{12}.

Iron—A very common anemia is that due to iron deficiency. In most cases, the response to iron salts is prompt, safe, and predictable. Within limits, the response is quicker and more certain to large doses of iron than to small doses.

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Ascorbic Acid—Vitamin C plays a role in anemia therapy. It augments the conversion of folic acid to its active form, folinic acid. In addition, ascorbic acid promotes the reduction of ferric iron in food to the more readily absorbed ferrous form. Severe and prolonged vitamin C deficiency is associated with an anemia which is usually hypochromic but occasionally megaloblastic in type.

Contraindications and Precautions: Anemia is a manifestation that requires appropriate investigation to determine its cause or causes.

Folic acid *alone* is unwarranted in the treatment of pure vitamin-B_{12}-deficiency states, such as pernicious anemia. Indeed, the use of folic acid in large doses in pernicious anemia without adequate vitamin B_{12} may result in hematologic remission but neurological progression.

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Depression in mothers who have lost a newborn

Joseph S. Jensen, MD, and Rothlyn Zahourek, RNMS,
Denver, Colorado*

A WOMAN'S REACTION to a hysterectomy and parent's reaction to the loss of a child are frequently discussed in the psychiatric literature. The grief reactions of parents who lose children with acute leukemia have likewise been adequately described.[2,3] Whereas many studies describe the high incidence of depression following hysterectomy,[1] the literature contains little regarding loss of the newborn.

Recently, however, Kennell[4] described the mourning process of parents who have lost a newborn. He found that mothers who had previously lost a baby, and those having positive feelings about their pregnancy obtained high "mourning scores", i.e., they were able to grieve a good deal, which he considered healthy. Again, recently Giles[5] studied 40 women who lost babies in the prenatal period. He described sedatives being prescribed to excess and reported that in half the cases the doctor avoided discussing the death of the baby with the parents.

The incidence of newborn death is sizable. Sudden infant death, generally occurring from two to four months after birth, has become of such concern that 20 states have established lay organizations to help the surviving parents. The purpose of this study, planned before publication of the above two related studies, was to determine if women who lose newborn babies or have a still birth in the last trimester of pregnancy, are a "high risk group"—one in which high incidence of depression occurs following the loss.

*Dr. Jensen is Assistant Professor of Psychiatry at the University of Colorado, and Rothlyn Zahourek is Psychiatric Research Nurse and Assistant Director of Crisis Services of Denver General Hospital's Mental Health Center.

Method

We studied 25 women who lost newborn babies or had a still birth in the last trimester of pregnancy and were delivered at Denver General Hospital. A psychiatric nurse saw the patient within a day or two after the loss. She gave a structured interview which elicited information about a number of factors which were thought might aid or impede the grieving process. The enhancing factors included (1) the support of a husband, boyfriend, or family, (2) the presence of other children in the home, (3) some forewarning of difficulty with the pregnancy, and (4) an ability to cry in response to the loss. Factors impeding the grief process included (1) other recent loss or stress such as divorce or caesarian section, (2) ambivalence about the pregnancy, (3) previous mental illness, and (4) an inability to cry.

In addition to the structured interview, the nurse administered two standardized depression scales: the Check List of Symptoms of Depressive State by Hamilton,[6] and the Self Rating Depression Scale by Zung.[7]

The follow-up plan was to repeat the structured interview and the two depression scales at six weeks and finally at the end of the year. The six-week period was chosen since much effort was being made in the hospital for the women to return for their postpartum obstetrical examination at that period, thus increasing the chance of the investigator seeing the patient. We anticipated that at six weeks grief work would still be in process. If a patient missed the six-week appointment, an attempt was made through the

TABLE 1

STUDY OF DEPRESSION WITH LOSS OF NEWBORN

	Number	Normal Range	Transient Depressed	Depressed Outpatient
Zung categories used		(20-39)	(40-49)	(50-80)
Initial Postpartum Interview (Study group)	25	37%	39%	24%
Six-Week Interview (Study group)	15	40.1%	26.6%	33.3%
One-Year Interview (Study group)	10	40%	40%	20%
Initial Interview (Control group)	12	75%	25%	0

Visiting Nurse Service to contact the patient; the Visiting Nurse then administered the structured interview and the Zung Scale.

By contacting the patient at a year, we tried to determine if the patient had resolved her grief. Since we postulated that resolving this kind of loss is difficult, we anticipated finding a high number of women who had not succeeded. The patient demonstrated successful grief resolution by deciding to have another child, resuming normal activities, or experiencing fewer and less severe symptoms of depression and demonstrating this in obtaining Zung Scores in the normal range. Her level of comfort around other women with babies also indicated the degree to which her grief had been resolved.

Following the completion of the work with the study group, we interviewed a control group of mothers whose infants lived, to determine the incidence and degree of depression they experienced following delivery. This group consisted of 12 patients who were matched to the study group as closely as possible on social and ethnic parameters, religion, age, and socio-economic status. The control group was comparable to the study group except on education (42 per cent of the control group had some college experience whereas none of the study group did). The control group was also somewhat more stable in terms of marital status and absence of previous psychiatric history.

Our initial plan of study utilized three sources of information: the structured interview, the Zung Self-Rating Scale, and Hamilton's Check List of Symptoms of Depressive States. With the difficulty in follow-up work, and the necessity to use Visiting Nurses, the structured interview was abbreviated, and the more complex Hamilton Check List was eliminated. Utilization of only one standardized instrument, the Zung Scale, to assess depression is a limitation of the study.

Results

Of the original 25 subjects, 15 were lost to the study. The 10 patients who were seen at a year were nevertheless representative (demographically and in range of scores) of the initial 25 patients interviewed. The comparison of these 10 study subjects with the 12 control group patients is shown in Table 1. The control group scores were slightly lower than those of the study group, both initially and at the end of the year.

The difference is further exemplified by a comparison of the Zung mean scores. The control group mean (N-12) is 35, which is within the normal range of the Zung scores (20-39). For the initial study group (N-10), the mean is 40.9; after one year the mean for the same group was 42.3. Both these figures fell into the low range of the transient depressed category (40-49).

When the control group was compared to the 10 patients seen both at six weeks and one year, the results were not significant. However, results are significant when the control group is compared to the total initial group of 25 patients (T-2.16, Alpha is less than .05 on a two-tail test). Likewise, when

the control group is compared to the 15 patients seen at six weeks, the results are significant on a two-tailed test (T-2.12, Alpha is less than .05).

We attempted to correlate the high depression scores with specific causative factors such as ambivalence about the pregnancy or previous loss of a newborn. We were unable to substantiate any correlation, perhaps because of the small size of the sample.

Discussion

Since physicians have been alerted to the greater risk of depression after hysterectomy than after cholecystectomy,[1] hopefully they can be made more aware of this danger with the loss of the newborn.

The statistical trends in this study would suggest that the group of women who lost their newborn remained depressed, and the clinical information collected indicates that the group was depressed after a year. We conclude that for some reason the grief process does not proceed as rapidly in this group. The women who were seen at a year were still preoccupied with the loss of the infant and the problems surrounding that loss. Many were still tearful when they talked about it and exhibited signs of depression such as sleeplessness, loss of appetite, and loss of energy.

Findings support the idea that preventive work at the time of the loss is important. Giles and Kennell have suggested the following measures: (1) avoid excessive use of sedatives and tranquilizers at the time of the loss; (2) discuss the loss of the newborn with the mother; (3) allow the mother to see the dead child if she requests it and permit the parents to bury the child if they wish to; (4) discuss the postmortem findings with the parents and give them a prognosis for a future pregnancy.

Summary

The study tested the hypothesis that women who lose newborn babies are a "high risk group"—one in which there is a great incidence of depression following the loss. Twenty-five mothers were interviewed shortly after their loss, again at six weeks, and then at a year. They were compared with 12 normal mothers seen only at the time of the birth of their child. The study supported the hypothesis that a significant number of the mothers were depressed after a year. We hope that the study will alert hospital personnel to the importance of this crisis. Some preventive measures that can help the mother deal with this situation more effectively are suggested. •

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Problem pregnancy

A perspective on abortion and the quality of human life

Stuart A. Plummer, Denver, Colorado*

The question of problem pregnancy and abortion continues to be highly charged and sensitive. Continuing discussion about abortion is appropriate, necessary, and potentially helpful.

THE ISSUES INTRINSIC TO competent and compassionate health care become increasingly complex. The causes are numerous and include a more medically knowledgeable and perceptive consumer of health care, a corresponding change in the physician's role, and problems resulting from the very successes of the general knowledge revolution, specifically, technological medicine. As a consequence there is a resulting obligation to attempt definitions of death and human life, an appropriate consideration of the patient's values, and an emerging awareness that the "economic well" has real limits requiring an individual and corporate effort to establish health priorities. Further, and of basic importance, there is a necessary though subtle shift from preserving or promoting life, traditionally understood on a mainly biological basis, toward intelligent and compassionate efforts to benefit persons. Additional factors which pertain specifically to unwanted or problem pregnancies include the changing status of women in our society and recent legal reforms primarily at the state level.

Questions, problems, and issues pertaining to this sector of health care are laden with feelings, and therefore are highly sensitive and controversial. Our attitudes and responses to such matters as problem pregnancy and abortion are intense, likely conflicting, and determined primarily by feelings. The issue thus is one colored mainly by personal experience and feelings, oftimes at the expense of more serious reflection and reason. Hence it is likely impractical, for example, to strive for either agreement about the point when human life actually begins. What is hopefully more realistic and achievable is a charitable willingness to allow a public policy which respects and allows differing value systems and practices within our pluralistic society.

The above often complicates the practice of medicine and health care. Our present situation ethically and philosophically increases both our freedom and responsibility, and our potential for anxiety and guilt. The questions are myriad, and adequate or comforting answers are frequently illusive. For instance, is termination of pregnancy acceptable? If so, on what basis? To whom may contraceptives be made available? What about a minimum age, parental consent, and marital status? Ought contraceptives or sterilization be mandatory following abortion? How may we seek creatively to separate professional responsibility from a punitive response? Or again, does such personal action involve the "playing of God" by that individual patient or health care professional? Put differently, does personal freedom and responsibility include the option to terminate a pregnancy? If so, within what if any limits? How may we deal sensitively and responsibly with those frequent clinical situations where perceptions and values are in conflict among physicians, other health care professionals, patient, family, and that nebulous, sometimes in-

*The author is Director of the Department of Pastoral Care and Education, Presbyterian Medical Center, Denver. This article is adapted from a paper presented as part of a panel entitled, "Perspectives On Abortion". The panel was a part of the Mid-West Health Congress, Kansas City, Missouri, June 1, 1972.

articulate, entity we term the community at large?

To reiterate, it is usually easier to articulate questions than to suggest answers, especially answers or solutions which may imply a broader and more general application. It is unfortunate—and also perhaps potentially exciting and anxiously creative—that ethically responsible actions differ, sometimes perhaps radically. Such is a direct consequence of the reality that situations differ so markedly, including the experience, needs, and values of the persons involved.

Our task focuses on persons and relationships rather than principles. The needs of the former are primary. In essence, we struggle with persons and relationships rather than with ethical absolutes. Intrinsic to this point of view is the affirmation that truth is personal and relational. While perhaps comforting to have someone else or an institution "tell me what to do", such is both an abdication of responsibility and a depletion of the anxious freedom of being human. What we are about, both personally and professionally, is the effort to nourish and support all that it takes to be and become human. Such obviously includes healing efforts. It may also include direct intervention to prevent or terminate fetal existence which is in direct conflict with the conscious needs, wishes, and values of a pregnant woman. Such is seen as a sensitive and compassionate response to the needs of a woman and in my view is not, by definition, murder.

What we are concerned with is ethics. It involves an effort to make sense of life, and to do so with integrity. Persons affirming religious values have differed, historically and in our time, about what constitutes an ethically valid attitude and act. We are continuously confronted with a disparity between ideal and act, between the intent to be loving and the loving effort. How may we struggle within the context of problem pregnancy with that intent and response and with the "gap" which so frequently results in significant feelings of remorse and guilt for health care professionals and pregnant women?

Ethics has to do with that which holds human society together, with the security and stability necessary to be human. A part therefore of religion's appropriate responsibility to health care in our time is to provide sufficient freedom and security within which these increasingly difficult and complex ethical questions may be honestly faced and grappled with. Religion may be appropriately helpful if it (1) articulates an ethical norm which applies to different persons in different situations in different ways (a frankly contextual approach), (2) encourages efforts to perceive these issues as comprehensively as is humanly possible and hopefully avoids thereby either an overly simple approach or response which oversimplifies the complexity intrinsic to human living, and (3) seeks to support the individual health practitioner's values and competence in a given specific decision. This last means for me that religion's responsibility is not to make decisions for medicine, health care, and its consumers. Its role is not a prescriptive one. It does, however, include a responsibility to exercise religion's critical faculties. But, this is a judgment ultimately of forgiveness rather than a condemnation of medicine, the individual physician, and health care in general.

In a different though related context, a thoughtful and articulate clinician has stated in an historic and traditional ethical perspective:

> "The dominant tradition is for the physician to provide the best care of which he is capable for those who either seek his services or are assigned to his responsibility; by and large this is done without regard for the conceivably broader issue that a treatment is justifiable on social grounds. His reasons may include pride, altruism, compassion, curiosity, the spirit of competition, even avarice, or a combination of all of these things. . . . The foregoing viewpoint is a narrow one, but there is no reason to believe that it should be abandoned in the face of advancing technocracy. It has shielded the ill from the caprices and moral judgments of other men through centuries of evolving philosophical, religious, and legal doctrines. It has placed the concept of the sanctity of human life on a practical foundation, since the responsibility of one person for another could not be more clearly defined than through the doctor-patient relationship. . . ."†

When considered within the broad perspective of patient values, i.e., a woman's right to control her fertility, the implications of this viewpoint are indeed far-reaching. Nonetheless societal needs, values, concerns, and ques-

†Starzl, Thomas E., PhD, MD: Ethical Problems in Transplantation. Ann. of Int. Med. 67: September 1967.

tions are relevant and pertinent, despite the obvious problems in assessing them and the very legitimate concern lest public feelings imperialistically prohibit a sensitive and compassionate response to individual human need and request for service. At the same time individuals ought no longer to reflect or act without thoughtful consideration for the needs of and consequences to society and mankind; babies ought not only to be "truly wanted" and "affordable emotionally and financially", but the question of another child should be considered in light of our environmental and population crisis.

Are there occasions when abortions are contraindicated? If so, what are they? My viewpoint is that indications against abortions do exist. They are, however, more medical and psychiatric than religious, when the latter is construed in prescriptive and moralizing ways. Religion is very much involved in questions of meaning and value, to the pregnant woman and within the context of relationships important to her. Theological or religious perspectives may be, and obviously are, utilized either for or against abortion as an alternative to unwanted pregnancy. They are to be respected and taken seriously. But such views ought not to be affirmed in ways which are prohibitive or imperialistic.

But, to return to the question of contraindications, they do exist. For me, they focus on obvious conflict, guilt, and ambivalence for the woman facing a problematic pregnancy. When she is quite obviously ambivalent or conflicted, abortion should be considered with caution. There are also instances when women, especially young adolescents, need to be pregnant for deep unconscious reasons. In such circumstances an abortion will frequently only result in another subsequent pregnancy. In such situations being pregnant is symptomatic rather than the real issue, and competent psychotherapeutic intervention is indicated. Further, the potential for guilt, though difficult to assess, should always be taken seriously.

In my religious perspective, abortion is a valid option in instances of unwanted pregnancy. Thus for me human life commences at birth, with spontaneous respiration and the giving of a name (recognition and acceptance into the human community). However, that view is as arbitrary as the one which ascribes essential human qualities to the moment of conception. The latter position is an option, though it is totally dependent upon a biologic/genetic definition of human life. Again, value systems ought to be taken seriously, but not allowed to be prohibitive or imperialistic in health care.

For me the primary issue is not the right of a woman to exercise control and responsibility for her own fertility, as important as that is, but the question of responsible parenthood and the expectations of any child. As regards the latter, paramount amongst the "rights" of the unborn is the right to be wanted. To be knowingly unwanted can be an overwhelming and unmanageable burden. Such awareness can be patently intolerable. The physiologic capacity of a woman to bear a child in no way automatically assures the emotional capacity or potential to be a mother.

Finally, and to make as explicit as possible my own frame of reference, affirmed is a woman's right to exercise freedom and responsibility for her fertility, including abortion by mutual consent between her and her physician. What we strive to support is human life, understood and approached qualitatively, in contrast to a quantitative and merely biologic definition. Quite obviously such a decision is dependent upon the prior mutual agreement of the pregnant woman and her physician. Implicit too is an acceptance of active efforts to end biologic fetal life. A physician's prime responsibility professionally is not an uncomplicated and automatic effort to promote and preserve life, but an intelligent and compassionate intervention that affirms the integrity of his patient. Whatever we do should be to the benefit of the woman with a problem pregnancy, with a primary emphasis upon options which she sees as beneficial to her welfare.

Man has come of age. He has not supplanted God, but man has become a partner with Him in an on-going creative process. Man cannot avoid God-like decisions. Not to decide is also a decision, and thus is to act like a diety. Such an anxious affirmation and obligation means that we take the risk to be free and responsible. To choose otherwise is to lessen or deny our humanity. •

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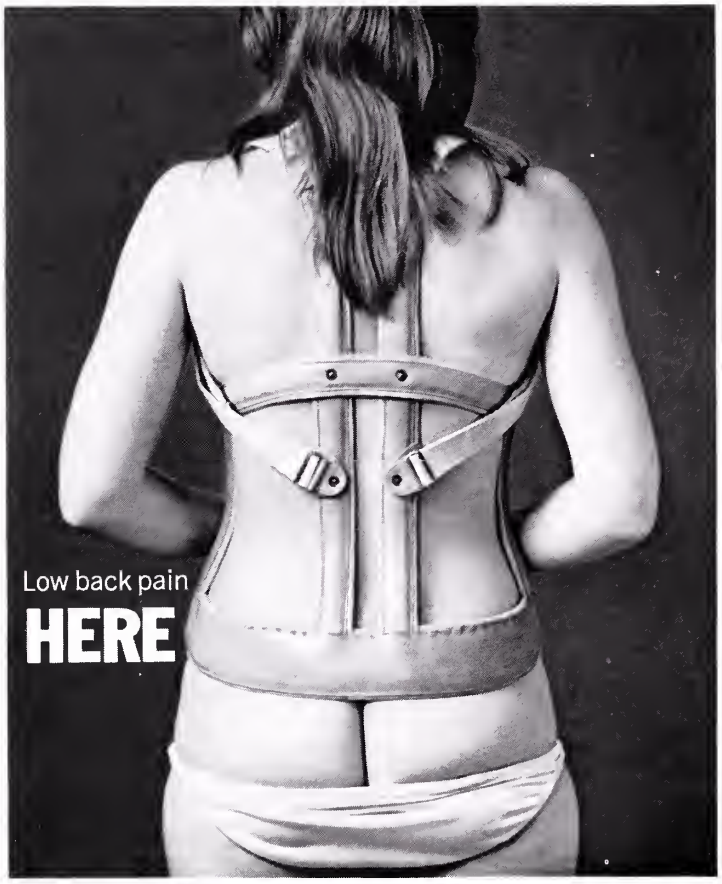

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Dr. Anthony Elected to Office

Catherine W. Anthony, MD, Denver pathologist, will be installed as the First Vice President of the American Medical Women's Association at its 57th Annual Meeting on November 14. Dr. Anthony received her MD degree from the University of Colorado School of Medicine in 1950 and continued her training and started her practice in the State. She has been active in professional specialty societies as well as the American Medical Women's Association on the local level. The purpose of the Association, which is headquartered in New York City, is to further the field of medicine and the status of women in that field, primarily by providing loan funds to women medical students and by encouraging qualified and capable women to enter the medical profession.

Another Streptococcus Control Program to Begin in Northeast Colorado

With $11,000 granted by the Colorado-Wyoming Regional Medical Program and the Colorado Heart Association, the Northeast Colorado Health Department is beginning a streptococcus control program aimed at grade school children in Logan and Morgan counties. The program, the only one of its kind in the state and one of three such projects in the country, will be a continuation of the effort begun last year in Sterling. A similar program conducted in Fort Morgan by Dr. Ham Jackson was reported in "Colorado Heart Association's School Culture Program", which was published on pages 56-60 of our October issue and co-authored by Dr. Jackson and Pat Freeburg, microbiologist and laboratory director of the Northeast County Health Department. One significant difference of this program from the 1970-71 study is that children with confirmed, active streptococcal infections will not be allowed to return to school unless officials are assured, in writing, that students have received medical treatment thus keeping infections at a minimum.

New Codes for Specialty Designation

We have received the current list of designated medical specialty codes and recognized medical specialties which are accepted for identification n the American Medical Association master file of physicians.

Please check your listing in the 1972 DIRECTORY OF PHYSICIANS published by the ROCKY MOUNTAIN MEDICAL JOURNAL, and let us know if one of the new specialty codes would be more applicable for your practice designation. One code, and **one only,** *is permitted for each individual listing.*

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GP	General Practice	**OTO**	Otorhinolaryngology	**CRS**	Surgery, Colon and Rectal
GPM	General Preventive Medicine	**PTH**	Pathology	**GS**	Surgery, General
GER	Geriatrics	**CLP**	Pathology, Clinical	**HS**	Surgery, Hand
GYN	Gynecology	**FOP**	Pathology, Forensic	**HNS**	Surgery, Head and Neck
HEM	Hematology	**PD**	Pediatrics	**NS**	Surgery, Neurological
HYP	Hypnosis	**PDA**	Pedriatics, Allergy	**ORS**	Surgery, Orthopedic
ID	Infectious Diseases	**PDC**	Pediatrics, Cardiology	**PDS**	Surgery, Pediatric
IM	Internal Medicine	**PM**	Physical Medicine and Rehabilitation	**PS**	Surgery, Plastic
LAR	Laryngology	**P**	Psychiatry	**TS**	Surgery, Thoracic
LM	Legal Medicine	**CHP**	Psychiatry, Child	**TRS**	Surgery, Traumatic
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Colorado and Wyoming Radiologists Get Computer Service

Radiologists at St. Mary's Hospital in Grand Junction and Logan County Hospital in Sterling, both in Colorado, and Wyoming's Laramie County Memorial Hospital in Cheyenne and Natrona County Memorial Hospital in Casper are now able to consult with a Denver-based computer about complicated radiation dosages in treatment of cancer patients. The three-year project sponsored by the Colorado-Wyoming Regional Medical Program in cooperation with the University of Colorado Medical Center allows doctors in hospitals with radiation therapy equipment but not sophisticated computer backup to accurately determine the best treatment plans for their patients.

By feeding various data on the patient and the proposed treatment plan into the computer by a telephone call, the radiologist is able to determine the effects of the proposed plan from the computer printout, which indicates the amount of radiation reaching over 400 points in the body. In this way the doctor can tell within a few minutes the possible effect of several different plans on his patients. According to Dr. Bruce Ward, Grand Junction radiologist, the speed and accuracy of the computer service allows doctors to "individualize treatment plans, rather than relying on a more cautious, traditional textbook approach", thus being able to utilize the most effective and sophisticated treatments while minimizing possible adverse reactions and permitting patients to stay in their own communities for treatment rather than traveling to Denver.

The four hospitals will participate in the program for a one-year trial period, at the end of which time they will determine whether to retain the service and assume full cost. During the next two years of the three-year project, the computer service will be offered to other regional hospitals in the two states on a one-year trial basis.

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All abstracts, to consist of 200 words, should be sent by January 1, 1973 to Professor Donald E. Dick, Department of Electrical Engineering, University of Colorado, Boulder, Colorado 80302.

Association for the Advancement of Medical Instrumentation

For further information about submitting abstracts of papers for the Association's annual meeting in March 1973 in Washington, D.C., write: Association for the Advancement of Medical Instrumentation, 1500 Wilson Boulevard, Suite 417, Arlington, Virginia 22209.

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The Medical Society of the State of New York has announced the opening of competition for the 1973 Albion O. Bernstein, MD Award, a national award consisting of $2,000 to be given a physician, surgeon, or scientist who has made a widely beneficial scientific discovery in medicine. Submit the name or names of those who, in your opinion, are eligible for this award to Awards Committee, Medical Society of the State of New York, 420 Lakeville Road, Lake Success, New York 11040. Nominations must be received by December 15, 1972.

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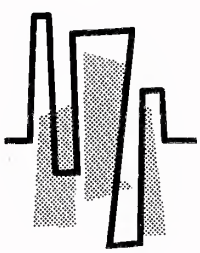

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OFFICERS—1972-73—Terms of Officers and Committeemen expire at the Annual Meeting in the year indicated. Where no year is indicated the term is for one year only and expires at the 1973 Annual Meeting.

President: Hollis K. Lefever, Lewistown.

President-elect: John R. Burgess, Jr., Helena.

Vice President: John R. Halseth, Great Falls.

Secretary-Treasurer: Robert P. Yost, Missoula.

Assistant Secretary-Treasurer: William E. Hadcock, Conrad.

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Alternate Delegate to the A.M.A.: Mark B. Listerud, Wolf Point.

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Scientific Editor for Montana, Rocky Mountain Medical Journal: Gerald A. Diettert, Missoula.

Associate Editor, Rocky Mountain Medical Journal: Mr. L. Russell Hegland, Billings.

Executive Secretary: Mr. L. Russell Hegland, 1236 North 28th Street, P.O. Box 1692, Billings 59103. Telephone (406) 252-6673.

Nevada State Medical Association

OFFICERS—1971-72—Terms of Officers and Committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at th 1972 Annual Session.

President: William D. O'Gorman, Las Vegas.

President-elect: John P. Sande, Reno.

Secretary-Treasurer: John W. Callister, Reno.

Immediate Past President: V. E. Elliott, Fallon.

Delegate to A.M.A.: Leslie A. Moren, Elko.

Alternate Delegate to A.M.A.: Kenneth E. Turner, Las Vegas.

Scientific Editor for Nevada, Rocky Mountain Medical Journal: Harry J. McKinnon, Las Vegas.

Assistant Scientific Editor for Nevada, Rocky Mountain Medical Journal: Wesley W. Hall, Reno.

Associate Editor, Rocky Mountain Medical Journal: Mr. Nelson B. Neff, Reno.

Executive Director: Mr. Nelson B. Neff, 3660 Baker Lane, Reno 89502. Telephone (702) 323-6788.

New Mexico Medical Society

OFFICERS—1972-73—Terms of Officers and Committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at the 1973 Annual Session.

President: Don R. Clark, Roswell.

President-Elect: Armin T. Keil, Raton.

Vice President: U. G. Hodgin, Albuquerque.

Secretary-Treasurer: Ronald V. Dorn, Albuquerque.

Immediate Past President: Vaun T. Floyd, Albuquerque.

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Vice Speaker, House of Delegates: Rex G. Quigley, Hobbs.

Delegate to A.M.A.: Allan L. Haynes, Clovis.

Alternate Delegate to A.M.A.: Emmit M. Jennings, Roswell.

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Assistant Scientific Editor for New Mexico, Rocky Mountain Medical Journal: William S. Curran, Albuquerque.

Associate Editor for New Mexico, Rocky Mountain Medical Journal: Mr. Ralph R. Marshall, Albuquerque.

Executive Director: Mr. Ralph R. Marshall, 3010 Monte Vista Boulevard NE, Albuquerque. Telephone (505) 265-8494.

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Utah State Medical Association

OFFICERS—1972-73—Terms of Officers and Committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at the 1973 Annual Session.

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Alternate Delegate to A.M.A.: Alan R. Nelson, Salt Lake City.

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Vice Speaker, House of Delegates: John W. Emmett, Logan.

Scientific Editor for Utah, Rocky Mountain Medical Journal: Alan E. Lindsay, Salt Lake City.

Associate Editor, Rocky Mountain Medical Journal: Mr. Hoyt W. Brewster, Salt Lake City.

Executive Director: Mr. Hoyt W. Brewster, 42 South Fifth East Street, Salt Lake City 84102. Telephone (801) 355-7477.

Wyoming State Medical Society

OFFICERS—1972—Terms of Officers and Committeemen expire December 31, 1972. At the 1971 Annual Session, terms of office (with the exception of Delegate and Alternate Delegate to AMA) were changed to expire at the end of the calendar year rather than at the Annual Session.

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Vice President: Paul R. Yedinak, Rock Springs.

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Alternate Delegate to A.M.A.: Thomas A. Nicholas, Buffalo.

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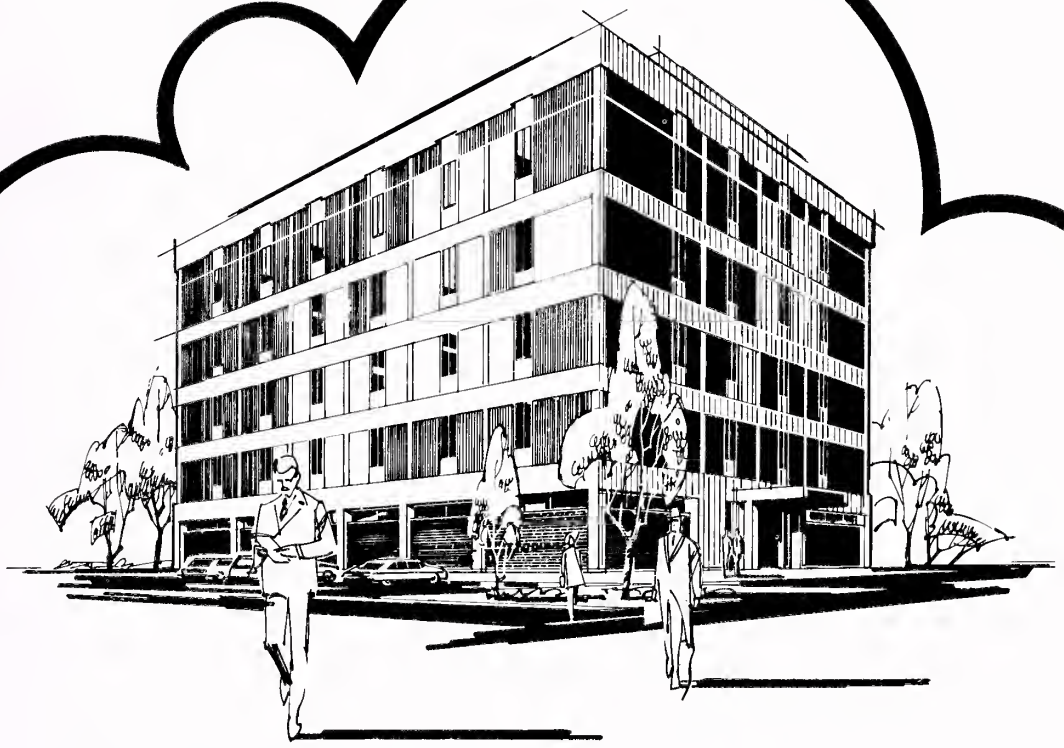

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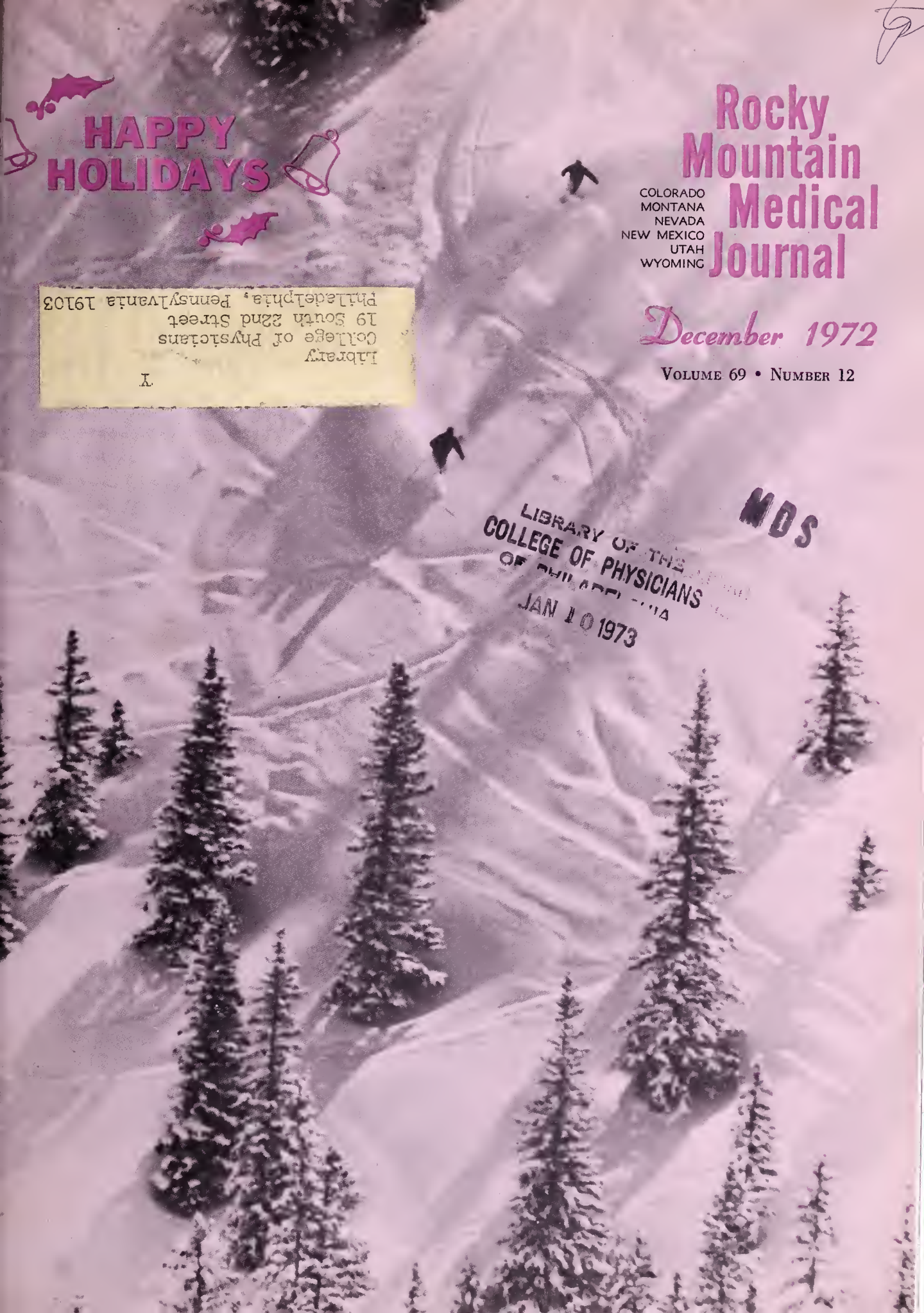

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Important Note: This drug is not a simple analgesic. Do not administer casually. Carefully evaluate patients before starting treatment and keep them under close supervision. Obtain a detailed history, and complete physical and laboratory examination (complete hemogram, urinalysis, etc.) before prescribing and at frequent intervals thereafter. Carefully select patients, avoiding those responsive to routine measures, contraindicated patients or those who cannot be observed frequently. Warn patients not to exceed recommended dosage. Short-term relief of severe symptoms with the smallest possible dosage is the goal of therapy. Dosage should be taken with meals or a full glass of milk. Patients should discontinue the drug and report immediately any sign of: fever, sore throat, oral lesions (symptoms of blood dyscrasia); dyspepsia, epigastric pain, symptoms of anemia, black or tarry stools or other evidence of intestinal ulceration or hemorrhage, skin reactions, significant weight gain or edema. A one-week trial period is adequate. Discontinue in the absence of a favorable response. Restrict treatment periods to one week in patients over sixty.
Indications: Acute gouty arthritis, rheumatoid arthritis, rheumatoid spondylitis.
Contraindications: Children 14 years or less; senile patients; history or symptoms of G.I. inflammation or ulceration including severe, recurrent or persistent dyspepsia; history or presence of drug allergy; blood dyscrasias; renal, hepatic or cardiac dysfunction; hypertension; thyroid disease; systemic edema; stomatitis and salivary gland enlargement due to the drug; polymyalgia rheumatica and temporal arteritis; patients receiving other potent chemotherapeutic agents, or long-term anticoagulant therapy.
Warnings: Age, weight, dosage, duration of therapy, existence of concomitant diseases, and concurrent potent chemotherapy affect incidence of toxic reactions. Carefully instruct and observe the individual patient, especially the aging (forty years and over) who have increased susceptibility to the toxicity of the drug. Use lowest effective dosage. Weigh initially unpredictable benefits against potential risk of severe, even fatal, reactions. The disease condition itself is unaltered by the drug. Use with caution in first trimester of pregnancy and in nursing mothers. Drug may appear in cord blood and breast milk. Serious, even fatal, blood dyscrasias, including aplastic anemia, may occur suddenly despite regular hemograms, and may become manifest days or weeks after cessation of drug. Any significant change in total white count, relative decrease in granulocytes, appearance of immature forms, or fall in hematocrit should signal immediate cessation of therapy and complete hematologic investigation. Unexplained bleeding involving CNS, adrenals, and G.I. tract has occurred. The drug may potentiate action of insulin, sulfonylurea, and sulfonamide-type agents. Carefully observe patients taking these agents. Nontoxic and toxic goiters and myxedema have been reported (the drug reduces iodine uptake by the thyroid). Blurred vision can be a significant toxic symptom worthy of a complete ophthalmological examination. Swelling of ankles or face in patients under sixty may be prevented by reducing dosage. If edema occurs in patients over sixty, discontinue drug.
Precautions: The following should be accomplished at regular intervals: Careful detailed history for disease being treated and detection of earliest signs of adverse reactions; complete physical examination including check of patient's weight; complete weekly (especially for the aging) or an every two week blood check; pertinent laboratory studies. Caution patients about participating in activity requiring alertness and coordination, as driving a car, etc. Cases of leukemia have been reported in patients with a history of short- and long-term therapy. The majority of these patients were over forty. Remember that arthritic-type pains can be the presenting symptom of leukemia.
Adverse Reactions: This is a potent drug; its misuse can lead to serious results. Review detailed information before beginning therapy. Ulcerative esophagitis, acute and reactivated gastric and duodenal ulcer with perforation and hemorrhage, ulceration and perforation of large bowel, occult G.I. bleeding with anemia, gastritis, epigastric pain, hematemesis, dyspepsia, nausea, vomiting and diarrhea, abdominal distention, agranulocytosis, aplastic anemia, hemolytic anemia, anemia due to blood loss including occult G.I. bleeding, thrombocytopenia, pancytopenia, leukemia, leukopenia, bone marrow depression, sodium and chloride retention, water retention and edema, plasma dilution, respiratory alkalosis, metabolic acidosis, fatal and nonfatal hepatitis (cholestasis may or may not be prominent), petechiae, purpura without thrombocytopenia, toxic pruritus, erythema nodosum, erythema multiforme, Stevens-Johnson syndrome, Lyell's syndrome (toxic necrotizing epidermolysis), exfoliative dermatitis, serum sickness, hypersensitivity angiitis (polyarteritis), anaphylactic shock, urticaria, arthralgia, fever, rashes (all allergic reactions require prompt and permanent withdrawal of the drug), proteinuria, hematuria, oliguria, anuria, renal failure with azotemia, glomerulonephritis, acute tubular necrosis, nephrotic syndrome, bilateral renal cortical necrosis, renal stones, ureteral obstruction with uric acid crystals due to uricosuric action of drug, impaired renal function, cardiac decompensation, hypertension, pericarditis, diffuse interstitial myocarditis with muscle necrosis, perivascular granulomata, aggravation of temporal arteritis in patients with polymyalgia rheumatica, optic neuritis, blurred vision, retinal hemorrhage, toxic amblyopia, retinal detachment, hearing loss, hyperglycemia, thyroid hyperplasia, toxic goiter association of hyperthyroidism and hypothyroidism (causal relationship not established), agitation, confusional states, lethargy; CNS reactions associated with overdosage, including convulsions, euphoria, psychosis, depression, headaches, hallucinations, giddiness, vertigo, coma, hyperventilation, insomnia; ulcerative stomatitis, salivary gland enlargement.
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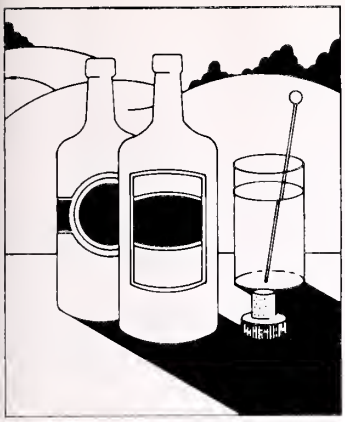

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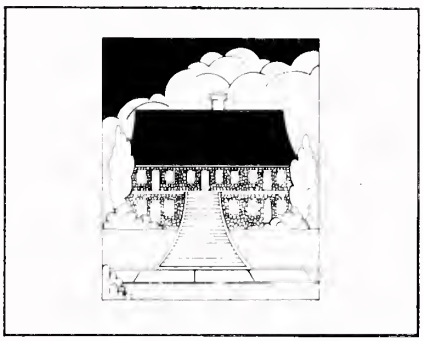

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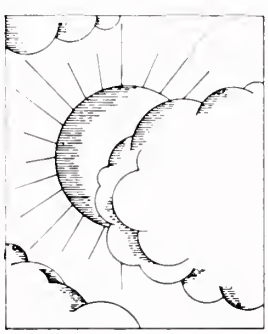

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OUR COVER PHOTO

Wedeling down one of Aspen, Colorado's many slopes, skiers convey the joyous spirit of this happy holiday season.

The staff of the *Rocky Mountain Medical Journal* wishes you and your family the best for the coming new year.

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To the Editor:

September's issue contains a paper by Dr. Arnold Franzblau of this city, very attractively presented, and seemingly including an unusually large number of surgical accidents seen by one individual in a community of our size. I am forced to protest, however, in the title's indictment of gynecology. It is unacceptable that Case No. 10, transsection of ureter during course of a left colon resection, be included in his bill of particulars.

C. E. Galt, MD
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Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

Dosage: Individualize for maximum beneficial effect. *Adults:* Tension, anxiety and psychoneurotic states, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed; adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d.; adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. *Geriatric or debilitated patients:* 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) *Children:* 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

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– George Sarton, from "The History of Medicine Versus the History of Art"

Are combination drug products useful in treatment involving concomitant use of two or more drugs?

Opinion

Results of a questionnaire to 7,000 physicians:

62.9%
Believe combination drug products are useful.

13.8%
Do not believe combination drug products are useful.

Are combination drug products useful in treatment involving concomitant use of two or more drugs?

Opinion & Dialogue

Doctor of Medicine

Louis Lasagna, M.D.
Professor and Chairman
Department of
Pharmacology & Toxicology
University of Rochester
School of Medicine
and Dentistry

Obviously, many drugs are given concomitantly. Whether it makes sense to combine medications in one preparation, be it capsule, tablet, or liquid, is a question that can be answered only by examining the advantages and disadvantages in the individual case.

Among the advantages is, first of all, convenience. The more medications that are taken concurrently and the more complicated the directions, the less likely the patient is to take medications accurately. From the standpoint of convenience and accuracy, and economy as well, you can make an important case for putting medications together in one preparation, as long as they are compatible.

By the same token, when you prescribe a properly tested and rational combination, you should have less worry about pharmaceutical or pharmacological compatibility – and about reasonable dosage ratios as well. Compatibility of the formulation should be demonstrated in the laboratory and clinic before the product is available for prescription—which is more than can usually be said for the physician's own spontaneous creations. And, the dosage ratios employed in rational precompounded combinations are designed to meet the needs of substantial numbers of "typical" patients.

There is no doubt that many "atypical" patients are to be found, and for them the prefabricated combination must be rejected. But that hardly argues for eliminating rational combinations from the market. Think, for example, of the problems that would arise if the components of widely accepted combinations, like the oral contraceptives and the diuretic-antihypertensives, always had to be prescribed, purchased and ingested separately.

One disadvantage that comes to mind is some doctors' unawareness of the ingredients a given combination contains. For example, a doctor might know that a patient is allergic to aspirin but forget that a certain analgesic mixture, which he knows only by its trade name, contains aspirin. His prescription, then, causes considerable discomfort, to say the least. This problem is a function of physician education, rather than of combination therapy as such. Improving doctors' knowledge about all medicaments they prescribe is a problem that deserves tackling on its own.

Another accusation leveled at combination drugs is that they encourage sloppiness of diagnosis and treatment. In many cases, however, a combination may prove to be the most effective choice. A good example of the usefulness of combinations appears in a recent article in the *Journal of Chronic Diseases* on the efficacy and side effects of an antihypertensive containing three ingredients, in which the track records of the combination drug and the individual ingredients were compared. Interestingly enough, whether the drugs were given individually or together, incidence and severity of side effects were the same. But blood pressure control was invariably better when the drugs were taken in one combination tablet than when they were taken separately (in "titratable" dosage) or in two or three different tablets.

Deciding which combinations constitute rational therapy obviously leads to a discussion of who is to determine which should be used and which should not. Realistically, I think combinations should be evaluated somewhat differently if they are old and established or new and untried.

In today's regulatory atmosphere, there is no possibility of a new combination being put on the market without a substantial amount of acceptable evidence in the form of controlled trials that show it to be safe and efficacious. On the other hand, I believe a different set of standards should apply to combination preparations that have been around for a long time. In other words, physician acceptance over a long period should be given some weight as evidence of the efficacy and safety of these drugs.

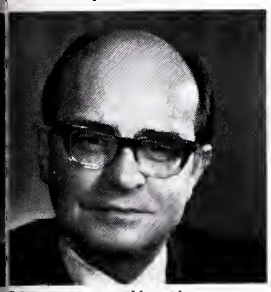
The FDA, however, does not seem to share this attitude. It often requires, for these older products, controlled trials that will monopolize the time of already overtired investigators and cost a great deal of money. I wish we could agree on a "grandfather clause" approach to preparations that have been in use for a number of years and that have an apparently satisfactory track record.

For example, I think some of the antibiotic combinations that were taken off the market by the FDA performed quite well. I am thinking particularly of penicillin - streptomycin combinations that patients—especially surgical patients—were given in one injection. This made for less discomfort for the patient, less demand on nurses' time, and fewer opportunities for dosage errors. To take such a preparation off the market doesn't seem to be good medicine, unless actual usage showed a great deal of harm from the injection (rather than the proper use) of the combination.

The point that should be emphasized is that there are both rational and irrational combinations. The real question is, who should determine which is which? Obviously, the FDA must play a major role in making this determination. In fact, I don't think it can avoid taking the ultimate responsibility, but it should enlist the help of outside physicians and experts in assessing the evidence and in making the ultimate decision.

Maker of Medicine

W. Clarke Wescoe, M.D.
President
Winthrop Laboratories



If two medications are ed effectively to treat a rtain condition, and it is own that they are comtible, it clearly is useful d convenient to provide m in one dosage form. would make no sense, in t it would be pedantic, insist they always he scribed separately. To oid the appearance of dantry, the "expert" des the combination beuse it is a fixed dosage m. When the "expert" okes the concept of fixed sage form he obscures fact that single-ingrednt pharmaceutical prepations are also fixed sage forms. By a singular mantic exercise he imes a pejorative meaning the term "fixed dose" y when he uses it with pect to combinations. hat is ignored is the simfact that only in the rest of circumstances es any physician attempt titrate an exact therautic response in his patnt. It is quite possible t some aches and pains l respond to 500 mg. of pirin yet that fact does militate against the *usu*dose being 650 mg.

The other semantic ploy en called into play is to scribe a combination oduct as rational or irrational.

Take antibiotic mixtures, source of much of the icism generated against combinations generally. Obviously, no one should be exposed willy-nilly to the potential side effects of two or three antihiotics when only one is needed. At the same time there are cases where it is prudent to prescrihe more than one. The clinician is the judge in these circumstances, as he should be.

There is no clear definition of the word rational. Most persons, I suppose, would find it synonymous with reasonahle, but in many circumstances it may best be defined as the opinion of those in power at the moment.

Other factors govern combination therapy, not the least of which has heen its broad use by practicing physicians anxious to achieve convenience in prescrihing, to reduce medication error, and to save money for their patients. Combinations clearly have met the test on all three counts.

I have been impressed by studies showing that the rate of error climbs markedly with the number of medications to be taken, even with sophisticated patients. When medically justified, therefore, this factor alone supports the logic of combination therapy.

The cost argument for combinations appears to be irrefutable. In 1971, R. A. Gosselin studied the 71 combination products (excluding oral contraceptives) among the 200 most prescribed drugs. The study found that if all 71 products were discontinued, and if each ingredient in these combinations were prescribed separately, the price of medicines to patients would jump by $443.2 million on a national basis! At a time when the cost of medical care is under so much fire, it would be nonsensical to boost costs without clearly irrefutable medical reasons.

The part played by government on this question, of course, is fundamental. The FDA should play a role in determining which combinations are reasonable. That role, as defined by law and regulation, is to ensure that any medication on the market is safe and effective in line with its label claims. Certainly combinations are entitled to as much consideration as single entities—neither more nor less. So long as the addition of one drug to another does not make either less safe, or less effective, so long as they are compatible in a formulation, we have a reasonable product. It makes no sense to recommend the use of two products for certain conditions and to deny their being combined in a single form. An unhappy side effect of the problem concerns the efficacy panel discussions of many products submitted for review. The term "effective, but" has been freely interpreted to mean "ineffective" in toto, regardless of the merit of the individual drugs. This interpretation has placed numerous useful combination products in needless jeopardy.

In reading the actual reports of the review panels, it seems clear that some of the ratings were based less on scientific research and clinical observation than on the "informed" opinions of the panelists. These "informed" opinions were accepted at face value, while the "informed" opinions of others who had used the products were rejected. All of this put combination products into a sort of scientific never-never land.

It should be kept in mind by all, government as well as others involved in our health care system, that advances in therapy are seldom made in leaps and bounds but rather by small painstaking steps—and that some of these steps have resulted from research in combination drugs as well as with single entities. Given the near-infinite biologic variation in patient response, this is hardly surprising to clinicians. It should not he to regulatory agencies either.

In the end, the practicing physician is in the best position to decide if a particular combination makes sense. Such a decision should not he made exclusively by those whose responsibility for continuing clinical care is limited. Clinicians are the best judges of efficacy because the ultimate proof of any product's effectiveness is acceptance by physicians who have observed its actions in patients over time. The corollary statement may be made about over-the-counter medicines, which would not long survive if they failed to afford the relief the user anticipates. That the antihistamine in a "cold" remedy may not *always* be necessary is no reason to proscribe the combination generally.

Opinion & Dialogue

What is your opinion, doctor?
We would welcome your comments.

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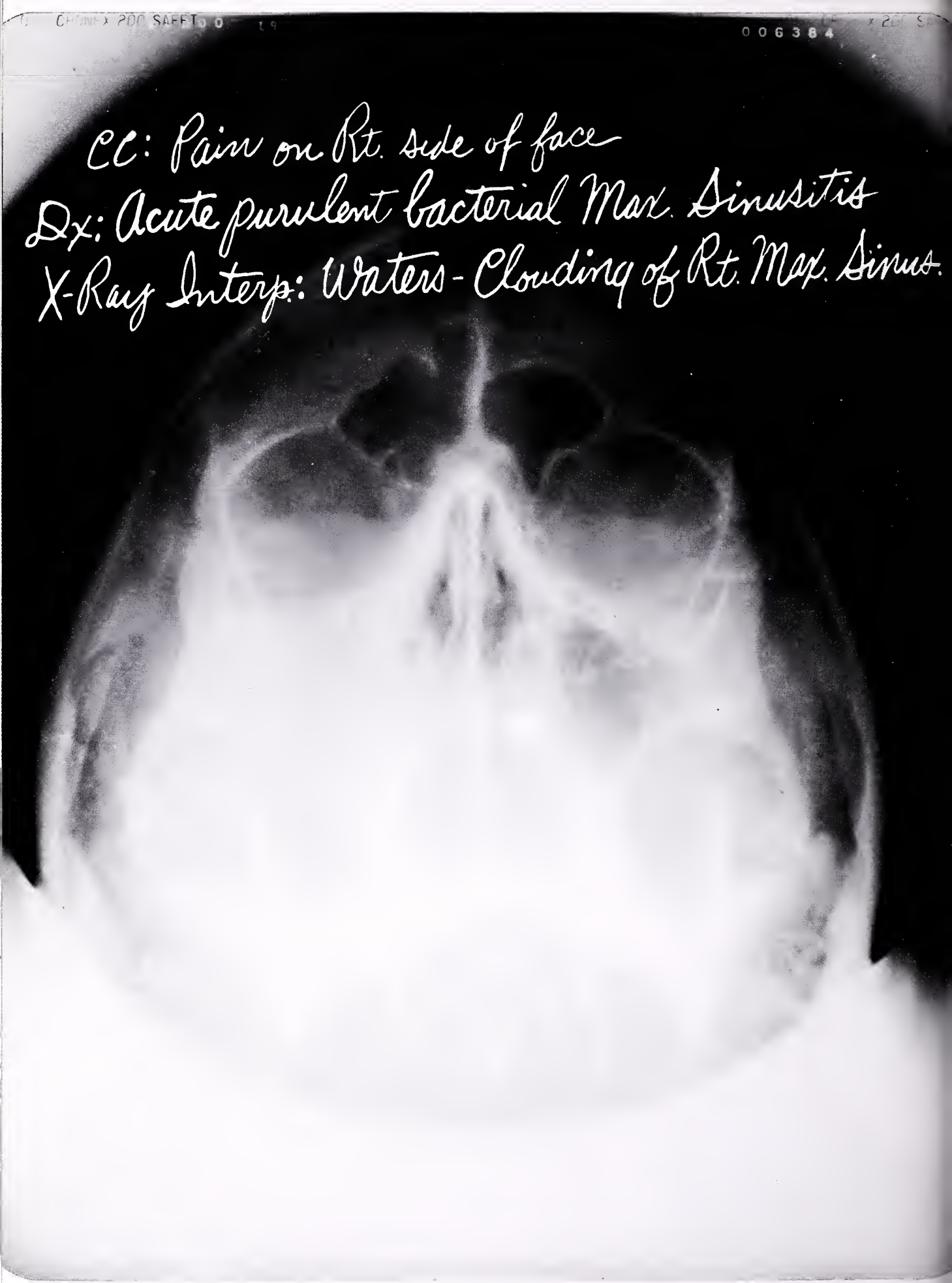
shelter in crevices of rocks.
When attempts are made to probe him
from his niche, he gulps air
until his abdomen is distended up to
sixty per cent over its normal size...
thus wedging himself tightly
in place and preventing capture.



X-ray provided by Manhattan Eye, Ear and Throat Hospital

There are many frustrations in treating acute sinusitis. Cleocin manages most of the bacterial ones.

Inadequate drainage, chronic rhinitis, allergy, exposure to temperature extremes, and other factors can delay recovery from acute sinusitis.

It's helpful to have an antibiotic like Cleocin HCl (clindamycin HCl hydrate, Upjohn) that can take care of most of the gram-positive bacterial problems related to the disease.

As one study* of 52 outpatients showed, acute maxillary sinusitis was associated with staphylococci in 50% of the group, with pneumococci in 25%, and with streptococci and various other organisms (chiefly gram-negative) in the remainder. Significantly, one-half of these staphylococcal infections were resistant to both penicillin and tetracycline (all were sensitive to erythromycin and chloramphenicol). Although not a part of this study, many other clinical and bacteriologic reports[1] have shown that such gram-positive bacteria, which most often are associated with acute sinusitis, are usually susceptible to Cleocin.

Can be taken before, with, or after meals

The total absorption of Cleocin is virtually unaffected by the presence of food in the GI tract.[1] Cleocin thus can be administered as prescribed without interfering with the patient's mealtimes.

Useful in patients hypersensitive to penicillin

Cleocin's chemical structure bears no relationship to penicillin or the cephalosporins. Cleocin therefore may be especially useful in patients with acute sinusitis who report a history of hypersensitivity to these antibiotics. Although hypersensitivity reactions have been uncommon with Cleocin, it should be used cautiously in atopic individuals. Cleocin is not recommended in the lincomycin-sensitive patient.

Please see following page for further prescribing information.

Cleocin® HCl 150 mg capsules

clindamycin HCl hydrate, Upjohn

eynolds, R. C., et al.: Bull. Johns Hopkins Hosp. 114:269, 1964
Data on file, Medical Research Department, The Upjohn Company

©1971 The Upjohn Company

Side effects: In studies of 1,416 patients involving 92 clinical investigators, side effects were reported in 8.2%.[1] Diarrhea or loose stools were noted in 3% of these cases (one patient with bloody stools). In a few instances, diarrhea lasted several days. A slightly higher incidence of diarrhea or loose stools has been reported by some investigators in subsequent studies.

Toxicity: No irreversible hematologic, renal, dermatologic, or neurologic abnormalities have been reported.[1] Transient leukopenia and eosinophilia have been observed. Elevations of alkaline phosphatase and serum transaminases were observed in a few instances. As with other antibiotics, periodic liver function tests and blood counts should be performed during prolonged therapy.

In acute sinusitis and other upper respiratory infections due to susceptible staphylococci, streptococci, and pneumococci.

Cleocin® HCl

clindamycin HCl hydrate, Upjohn

Each preparation contains:	Clindamycin HCl hydrate equivalent to clindamycin base
150 mg Capsules	150 mg
75 mg Capsules	75 mg

Cleocin (clindamycin, Upjohn) is a new semisynthetic antibiotic produced from the parent compound lincomycin and provides more *in vitro* potency, better oral absorption and fewer gastrointestinal side effects than the parent compound.

Cleocin HCl (clindamycin HCl hydrate) is indicated in infections of the upper and lower respiratory tract, skin and soft tissue, and, adjunctively, dental infections caused by gram-positive organisms which are susceptible to its action, particularly streptococci, pneumococci and staphylococci. As with all antibiotics, *in vitro* susceptibility studies should be performed.

CONTRAINDICATIONS: Patients previously found to be hypersensitive to this compound or to lincomycin.

WARNINGS: Safety for use in pregnancy not established. Not indicated in the newborn (infants below 30 days of age).

PRECAUTIONS: Prescribe with caution in atopic individuals. Perform periodic liver function tests and blood counts during prolonged therapy. The serum half-life in patients with markedly reduced renal function is approximately twice that in normal patients; hemodialysis and peritoneal dialysis do not effectively remove Cleocin from the blood. Therefore, with severe renal insufficiency, determine serum levels of clindamycin periodically and decrease the dose appropriately. Should overgrowth of nonsusceptible organisms—particularly yeasts—occur, take appropriate clinically indicated measures.

ADVERSE REACTIONS: Generally well tolerated in clinical efficacy studies. Side effects reported in 8.2% of 1,416 patients. Of the total, 6.9% reported gastrointestinal side effects and 1.3% reported other side effects. Diarrhea or loose stools were reported in 3%. *Gastrointestinal:* Symptoms included abdominal pain, nausea, vomiting and diarrhea or loose stools. In a few instances, diarrhea lasted for several days; one case of bloody stools was reported. *Hemotopoietic:* Transient neutropenia (leukopenia) and eosinophilia have been reported; relationship to therapy is unknown. No irreversible hematologic toxicity has been reported. *Skin and Mucous Membranes:* Skin rash and urticaria have been reported infrequently. *Hypersensitivity Reactions:* A few cases of hypersensitivity reaction have been reported. If hypersensitivity occurs, discontinue drug and have available the usual agents (epinephrine, corticosteroids, antihistomines) for emergency treatment. *Liver:* Although no direct relationship of Cleocin HCl (clindamycin HCl hydrate) to liver dysfunction has been noted and significance of such change is unknown, transient abnormalities in liver function tests (elevations of alkaline phosphatase and serum transaminases) have been observed in a few instances. Also, abnormal liver function test values at the beginning of therapy have returned to normal during therapy.

DOSAGE AND ADMINISTRATION: *Adults:* Mild to moderately severe infections—150 to 300 mg every 6 hours. Severe infections—300 to 450 mg every 6 hours.

Children: Mild to moderately severe infections—8 to 16 mg/kg/day (4 to 8 mg/lb/day) divided into three or four equal doses. Severe infections—16 to 20 mg/kg/day (8 to 10 mg/lb/day) divided into three or four equal doses.

Note: With β-hemolytic streptococcal infections, treatment should continue for at least 10 days to diminish the likelihood of subsequent rheumatic fever or glomerulonephritis.

SUPPLIED: 150 mg Capsules—Bottles of 16's and 100's. 75 mg Capsules—Bottles of 16's and 100's. *Sensitivity Disks*—2 µg. *Sensitivity Powder*—Vials.

For additional product information, see your Upjohn representative or consult package insert. MED B-4-S (LNU-3) JA71-1565

The Upjohn Company, Kalamazoo, Michigan 49001

Upjohn

Publication rules and suggestions to authors

1. Who may submit articles. The Rocky Mountain Medical Journal ordinarily accepts only articles prepared by members of the state societies we serve and by guest speakers at their official meetings.

2. Method of preparation. All material for publication must be typewritten, double spaced, with liberal margins, using only one side of the paper, pages consecutively numbered, and preferably on standard 8½ x 11 white bond paper. Carbon copies are *not* acceptable.

Title (preferably short) and author's name, city and state must appear at the top of the first page. Second and subsequent pages should be identified with consecutive page numbers and author's surname. If physician authors possess more than one degree, the MD only is used. Lesser degrees of non-MD authors or co-authors may be used.

Please include beneath the title or at the top of the first page a brief paragraph stating what the article is designed to show and, therefore, why it should be read. This introductory feature is, in editorial parlance, called the "blurb"; it is printed in bold type.

3. Where to submit material. All copy must be sent to the editor for the state in which the material originates. Editors for each state, with their mailing addresses, are listed monthly on the Table of Contents page of the Journal.

4. Acceptance or rejection. The state editor will (1) tentatively accept the article, (2) return it to the author with suggestions for revision, or (3) reject it. He will edit and forward approved copy to the publication office in Denver for final editing and scheduling.

5. Order of publication. Ordinarily, articles will be published in the order received. Those whose value is seasonal, whose value would be lost if publication is delayed, or which reflect priority of original research, are given special consideration. State presidential addresses, programs, state society minutes, and timely organization announcements are given priority.

6. Length of articles. Scientific papers should be "boiled down" not to exceed ten pages of double-spaced typewritten standard 8½ x 11 inch sheets. Shorter papers are more acceptable to editors and readers, and earlier publication is probable. Every journal is in competition for the reader's time, and condensation is the order of the day. For this reason, and because of financial and space limitations, we request that copy be condensed to the greatest extent consistent with conveying the message.

7. Illustrations. A limited number of illustrations or "cuts," usually up to six, will ordinarily be accepted within our own publication budget if the editor believes they enhance the value of the article. Clear photos, simple diagrams or line drawings in black on white, printing rather than writing, reproduce well. Cuts should be mounted separately, and the paper or cardboard mounts should be the same size as that upon which the article is typed. Each should have its caption below: Fig. 1, Fig. 2, etc., with a short descriptive sentence. Authors will be billed our cost for excess above six cuts.

8. Tables. Tables should be simple, presenting only brief relevant data, amply spaced. They should be placed at the back of the manuscript on separate sheets. Each should have its number and title above: Table 1, Title; Table 2, Title; etc. Long, large, or complicated tables ordinarily are not acceptable.

9. Case reports. Case reports are popular with our readers. A brief introductory statement concerning the condition or disease, tells why the case is presented. The report follows with a separate heading, CASE REPORT or CASE 1, CASE 2, etc. Include only relevant, positive laboratory and other data. Names, initials, and numbers are unimportant; age, sex, and sometimes occupation are significant. Minimize dates; then make it month, date, year—as February 9, 1969; not 2/9/69. After the case presentation, review or sum it up under a heading such as Discussion, Comment, Summary or Conclusion.

10. Footnotes. Footnotes must be brief. One at the bottom of the first page should state the Society and date of presentation, and institutional origin, if any. Special titles or position of the author, acknowledgements, etc., will be added according to simplicity, editorial policy and discretion.

11. References. Reference lists rarely add to the value of an article for the majority of readers. We will make every effort to publish short reference lists, but long ones will be deleted. Incidentally, the proper heading is "References," not "Bibliography." The latter implies everything in the literature upon the subject. Make them uniform in style and brief, as: Jones, W. K.: Pyelonephritis in Infancy. JAMA 141:75. 1964.

12. Editorials. We would like to have more submitted by our State editors and the membership at large. Readers must get tired of thunder from publication headquarters in Denver; frankly, we do too! Speak out, and we'll sign your name, initials, or respect your request for anonymity, as you choose. If you don't like something we do or say, please let us in on it; we could even stand to hear about it if something happens to please you. A "Letter to the Editor" may help you get something off your mind. We're asking for it and we have a place to put it—in the Journal, that is!

13. Proofs. Galley proofs are submitted to the author, and prompt return is essential. Authors should correct typographical, grammatical, or rhetorical errors, but do not reinsert or rewrite sentences, paragraphs, tables, etc., which an editor may have deleted, condensed, or paraphrased. When an article reaches the galley-proof stage, the author may NOT re-edit his article; that is the privilege of the Journal's editors.

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G.I. problems making her a fixture in your office?

'Milpath' can cut down her complaints by helping to control: bloating/cramping/pain/'nervous stomach' when aggravated by anxiety and tension*

For most patients:	*When spasm is severe:*
'Milpath'-400 (meprobamate 400 mg + tridihexethyl chloride 25 mg)	**'Milpath'-200** (meprobamate 200 mg + tridihexethyl chloride 25 mg)
Usual adult dose: *One* tablet t.i.d. at mealtimes, and two tablets at bedtime.	Usual adult dose: *Two* tablets t.i.d. at mealtimes, and two tablets at bedtime.

* **INDICATIONS:** Based on a review of this drug by the National Academy of Sciences—National Research Council and/or other information, FDA has classified the indication as follows:

"Possibly" effective: as adjunctive therapy in peptic ulcer and in the irritable bowel syndrome (irritable colon, spastic colon, mucous colitis, and functional gastrointestinal disorders), especially when accompanied by anxiety or tension.

Final classification of this indication requires further investigation.

CONTRAINDICATIONS: Tridihexethyl chloride: Previous allergic or idiosyncratic reactions to it or related compounds; urinary bladder-neck obstructions (e.g., prostatic obstructions due to hypertrophy); pyloric obstructions because of reduced motility and tonus; organic cardiospasm (megaesophagus); glaucoma; possibly in stenosing gastric or duodenal ulcers with significant gastric retention. **Meprobamate:** Acute intermittent porphyria and allergic or idiosyncratic reactions to meprobamate or related compounds such as carisoprodol, mebutamate, tybamate, carbromal.

WARNINGS: Meprobamate: *Drug Dependence:* Physical and psychological dependence and abuse have occurred. Chronic intoxication, from prolonged use and usually greater than recommended doses, leads to ataxia, slurred speech, vertigo. Carefully supervise dose and amounts prescribed, and avoid prolonged use, especially in alcoholics and addiction-prone persons. Sudden withdrawal after prolonged and excessive use may precipitate recurrence of pre-existing symptoms (e.g., anxiety, anorexia, insomnia) or withdrawal reactions (e.g., vomiting, ataxia, tremors, muscle twitching, confusional states, hallucinosis; rarely convulsive seizures, more likely in persons with CNS damage or pre-existent or latent convulsive disorders). Therefore, reduce dosage gradually (1-2 weeks) or substitute a short-acting barbiturate, then gradually withdraw. *Potentially Hazardous Tasks:* Driving a motor vehicle or operating machinery. *Additive Effects:* Possible additive effects between meprobamate, alcohol, and other CNS depressants or psychotropic drugs. *Pregnancy and Lactation:* Safe use not established; weigh potential benefits against potential hazards in pregnancy, nursing mothers, or women of childbearing potential. Animal data at five times the maximum recommended human dose show reduction in litter size due to resorption.

PRECAUTIONS: Tridihexethyl chloride: Use cautiously in elderly males (possible prostatic hypertrophy). **Meprobamate:** To avoid oversedation, use lowest effective dose, particularly in elderly and/or debilitated patients. Consider possibility of suicide attempts; dispense least amount of drug feasible at any one time. To avoid excess accumulation, use caution in patients with compromised liver or kidney function. Meprobamate may precipitate seizures in epileptics.

ADVERSE REACTIONS: Tridihexethyl chloride: Dry mouth (fairly frequent at oral doses of 100 mg), constipation or "bloated" feeling, tachycardia, bradycardia, dilated pupils, increased ocular tension, weakness, nausea, vomiting, headache, drowsiness, urinary hesitancy or retention, dizziness. **Meprobamate:** *Central Nervous System:* Drowsiness, ataxia, dizziness, slurred speech, headache, vertigo, weakness, paresthesias, impairment of visual accommodation, euphoria, overstimulation, paradoxical excitement, fast EEG activity. *Gastrointestinal:* Nausea, vomiting, diarrhea. *Cardiovascular:* Palpitations, tachycardia, various forms of arrhythmia, transient ECG changes, syncope; also hypotensive crises (including one fatal case). *Allergic or Idiosyncratic:* Usually after 1-4 doses. Milder reactions: itchy, urticarial, or erythematous maculopapular rash (generalized or confined to groin). *Other:* leukopenia, acute nonthrombocytopenic purpura, petechiae, ecchymoses, eosinophilia, peripheral edema, adenopathy, fever, fixed drug eruption with cross reaction to carisoprodol, and cross sensitivity between meprobamate/mebutamate and meprobamate/carbromal. More severe, rare hypersensitivity: hyperpyrexia, chills, angioneurotic edema, bronchospasm, oliguria, anuria, anaphylaxis, erythema multiforme, exfoliative dermatitis, stomatitis, proctitis, Stevens-Johnson syndrome, bullous dermatitis (one fatal case after meprobamate plus prednisolone). Stop drug, treat symptomatically (e.g., possible use of epinephrine, antihistamines, and in severe cases corticosteroids). *Hematologic:* Agranulocytosis and aplastic anemia (rarely fatal), but no causal relationship established. Rarely, thrombocytopenic purpura. *Other:* Exacerbation of porphyric symptoms.

USUAL ADULT DOSAGE: One 'Milpath'-400 (meprobamate 400 mg + tridihexethyl chloride 25 mg) tablet three times a day at mealtimes and 2 at bedtime. For greater anticholinergic effect, 2 'Milpath'-200 (meprobamate 200 mg + tridihexethyl chloride 25 mg) three times a day at mealtimes and 2 at bedtime. Meprobamate dose should not exceed 2400 mg daily.

Not for use in children under age 12.

OVERDOSAGE: Tridihexethyl chloride: Acute overdosage can produce dry mouth, difficulty swallowing, marked thirst; blurred vision, photophobia; flushed, hot, dry skin, rash; hyperthermia; palpitations, tachycardia with weak pulse, elevated blood pressure; urinary urgency with difficulty in micturition; abdominal distention; restlessness, confusion, delirium and other signs suggesting acute organic psychosis. Empty stomach after administration of Universal Antidote and treat symptomatically as indicated. **Meprobamate:** Suicidal attempts with meprobamate, alone or with alcohol or other CNS depressants or psychotropic drugs, have produced drowsiness, lethargy, stupor, ataxia, coma, shock, vasomotor and respiratory collapse, and death. Empty stomach, treat symptomatically; cautiously give respiratory assistance, CNS stimulants, pressor agents as needed. Meprobamate is metabolized in the liver and excreted by the kidney. Diuresis and dialysis have been used successfully. Carefully monitor urinary output; avoid overhydration; observe for possible relapse due to incomplete gastric emptying and delayed absorption.

Before prescribing, consult package circular or latest PDR information.

REV. 5/72

WALLACE PHARMACEUTICALS, Cranbury, N.J. 08512

Relaxes smooth muscle and psyche/ **Milpath®**

(meprobamate+tridihexethyl chloride)

When your diagnosis is seborrheic dermatitis of the scalp, the classic drug for controlling scaling and itching is Selsun®(SELENIUM SULFIDE LOTION)

Proven therapy that only you can give.

Precautions and side effects: Keep out of the eyes, burning or irritation may result. Avoid application to inflamed scalp or open lesions. Occasional sensitization may occur. Rinse well.

Contains: Selenium sulfide, 2½%, w/v in aqueous suspension: also contains: bentonite, alkyl aryl sulfonate, sodium phosphate, glyceryl monoricinoleate, citric acid and perfume.

ABBOTT

205377

Iron therapy for anemia is almost as old as history itself

Celsus's empirical use of iron

Aulus Cornelius Celsus recommended an unusual form of iron therapy for the treatment of enlarged spleens—the oral administration of water that blacksmiths had used for dousing white-hot iron.

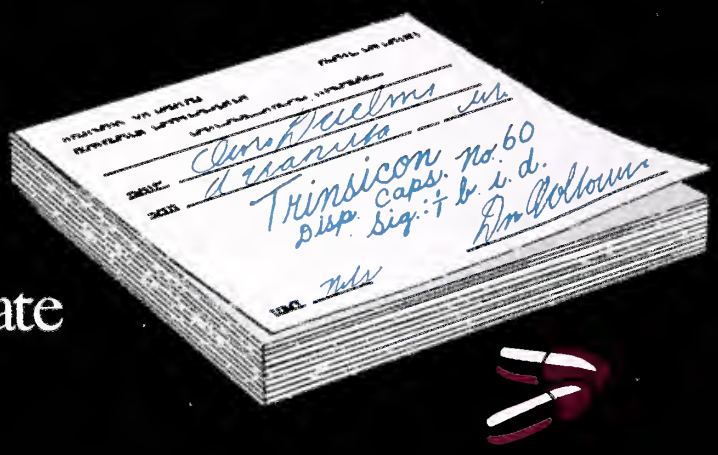
For more modern anemia therapy

Trinsicon®

Hematinic Concentrate with Intrinsic Factor

(See reverse side for prescribing information.)

Trinsicon®
Hematinic Concentrate with Intrinsic Factor



Description: Each Pulvule® contains—

Special Liver-Stomach Concentrate, Lilly (containing Intrinsic Factor)	240 mg.
Cobalamin Concentrate, N.F., equivalent to Cobalamin	7.5 mcg.
(The total vitamin B_{12} activity in the Special Liver-Stomach Concentrate, Lilly, and the Cobalamin Concentrate, N.F., is 15 micrograms.)	
Iron, Elemental (as Ferrous Fumarate)	110 mg.
Ascorbic Acid (Vitamin C)	75 mg.
Folic Acid	0.5 mg.

Indications: Trinsicon is a multifactor preparation effective in the treatment of anemias that respond to oral hematinics, including pernicious anemia and other megaloblastic anemias and also iron-deficiency anemia. Therapeutic quantities of hematopoietic factors that are known to be important are present in the recommended daily dose.

Vitamin B_{12} with Intrinsic Factor—When secretion of intrinsic factor in gastric juice is inadequate or absent (e.g., in Addisonian pernicious anemia or after gastrectomy), vitamin B_{12} in physiological doses is absorbed poorly, if at all. The resulting deficiency of vitamin B_{12} leads to the clinical manifestations of pernicious anemia. Similar megaloblastic anemias may develop in fish tapeworm (*Diphyllobothrium latum*) infection or after a surgically created small-bowel blind loop; in these situations, treatment requires freeing the host of the parasites or bacteria which appear to compete for the available vitamin B_{12}. Strict vegetarianism and malabsorption syndromes may also lead to vitamin B_{12} deficiency. In the latter case, parenteral therapy, or oral therapy with so called massive doses of vitamin B_{12}, may be necessary for adequate treatment of the patient.

Potency of intrinsic factor concentrates is determined physiologically, i.e., by their use in patients with pernicious anemia. The liver-stomach concentrate with intrinsic factor and the vitamin B_{12} contained in two Pulvules Trinsicon provide 1½ times the minimum amount of therapeutic agent which, when given daily in an uncomplicated case of pernicious anemia, will produce a satisfactory reticulocyte response and relief of anemia and symptoms.

Concentrates of intrinsic factor derived from hog gastric, pyloric, and duodenal mucosa have been used successfully in patients who lack intrinsic factor. For example, Fouts *et al.* maintained patients with pernicious anemia in clinical remission with oral therapy (liver extracts or intrinsic factor concentrate with vitamin B_{12}) for as long as twenty-nine years.

After total gastrectomy, Ficarra found multifactor preparations taken orally to be "just as effective in maintaining blood levels as any medication that has to be administered parenterally." His study was based on twenty-four patients who had survived for five years after total gastrectomy for cancer and who had been taking two Pulvules Trinsicon daily.

Folic Acid—Folic acid deficiency is the immediate cause of most, if not all, cases of nutritional megaloblastic anemia and of the megaloblastic anemias of pregnancy and infancy; usually, it is also at least partially responsible for the megaloblastic anemias of malabsorption syndromes, e.g., tropical and nontropical sprue.

It is apparent that in vitamin B_{12} deficiency (e.g., pernicious anemia), lack of this vitamin results in impaired utilization of folic acid. There are other evidences of the close folic acid-vitamin B_{12} interrelationship: (1) B_{12} influences the storage, absorption, and utilization of folic acid, and (2), as a deficiency of B_{12} progresses, the requirement for folic acid increases. However, folic acid does not change the requirement for vitamin B_{12}.

Iron—A very common anemia is that due to iron deficiency. In most cases, the response to iron salts is prompt, safe, and predictable. Within limits, the response is quicker and more certain to large doses of iron than to small doses.

Each Pulvule Trinsicon furnishes 110 mg. of elemental iron (as ferrous fumarate) to provide a maximum response.

Ascorbic Acid—Vitamin C plays a role in anemia therapy. It augments the conversion of folic acid to its active form, folinic acid. In addition, ascorbic acid promotes the reduction of ferric iron in food to the more readily absorbed ferrous form. Severe and prolonged vitamin C deficiency is associated with an anemia which is usually hypochromic but occasionally megaloblastic in type.

Contraindications and Precautions: Anemia is a manifestation that requires appropriate investigation to determine its cause or causes.

Folic acid *alone* is unwarranted in the treatment of pure vitamin-B_{12}-deficiency states, such as pernicious anemia. Indeed, the use of folic acid in large doses in pernicious anemia without adequate vitamin B_{12} may result in hematologic remission but neurological progression.

As with all preparations containing intrinsic factor, resistance may develop in some cases of pernicious anemia to the potentiation of absorption of physiological doses of vitamin B_{12}. If resistance occurs, parenteral therapy, or oral therapy with so-called massive doses of vitamin B_{12}, may be necessary for adequate treatment of the patient. No single regimen fits all cases, and the status of the patient observed in follow-up is the final criterion for adequacy of therapy. Periodic clinical and laboratory studies are considered essential and are recommended.

In extremely rare instances, skin rash suggesting allergy has been noted following the oral administration of liver-stomach material. Allergic sensitization has been reported following both oral and parenteral administration of folic acid.

Hemochromatosis and hemosiderosis are contraindications to iron therapy.

Adverse Reactions: In rare instances, iron in therapeutic doses produces gastrointestinal reactions, such as diarrhea or constipation. Reducing the dose and administering it with meals will minimize these effects in the iron sensitive patient.

Dosage: One Pulvule twice a day. (Two Pulvules daily produce a standard response in the average uncomplicated case of pernicious anemia.)

How Supplied: Pulvules Trinsicon® (hematinic concentrate with intrinsic factor, Lilly), in bottles of 60 and 500 and in Identi-Dose® (unit dose medication, Lilly) in boxes of 100.

[psiquin]

Trinsicon®
Hematinic Concentrate with Intrinsic Factor
A Comprehensive Hematinic

Additional information available to the profession on request.

Eli Lilly and Company
Indianapolis, Indiana 46206

Lilly

201378

Upjohn's low-priced penicillin VK

Uticillin® VK

(potassium phenoxymethyl penicillin, U.S.P., Upjohn)

Available in 250 and 500 mg tablets;
250 mg/5 ml and 125 mg/5 ml flavored granules
for oral suspension

Upjohn The Upjohn Company
Kalamazoo, Michigan 49001

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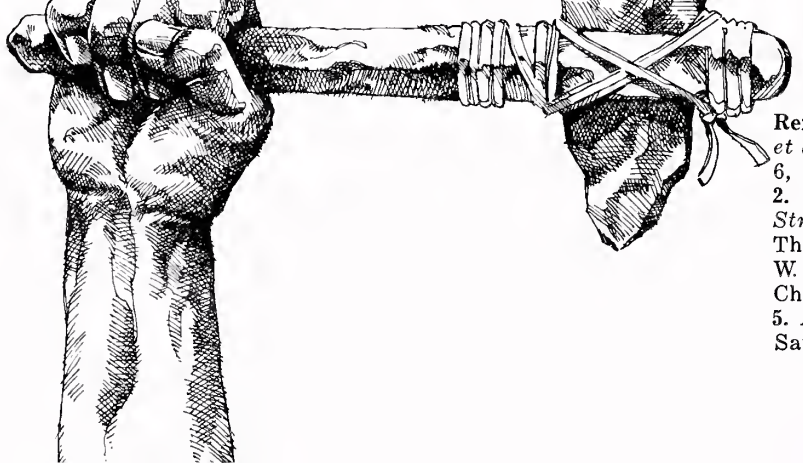
IF MORE MEN CRIED

At least seventy-five out of one hundred adults with duodenal ulcers are men.[1] Why? It may be significant that duodenal ulcer patients tend to crave recognition and are especially vulnerable when their manly assertive independence is threatened.[2]

Hypersecretion—an atavistic response. One investigator, who has studied the personalities of duodenal ulcer patients, wonders if masculine competitiveness is related to man's atavistic urge to devour his adversary. It is striking, he reports, that an accentuation of gastric acid secretion and motility can be induced in patients with ulcers by discussions that stimulate feelings of inadequacy, frustration and resentment.[2]

By chance? A lean, hungry lot. Was the link between emotions and gastric hyperacidity acquired through mutation to serve a purpose? During man's jungle period of evolution, the investigator points out, a male dealt with a foe by killing and devouring it. He concludes that it may be more than coincidence that peptic ulcer patients appear to be a lean, hungry, competitive group.[3]



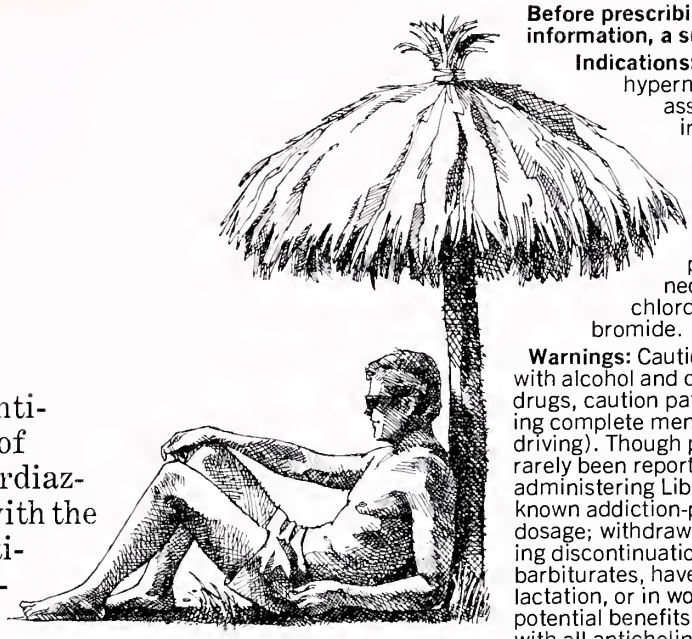
Big boys don't cry. If more men cried maybe fewer would wind up with duodenal ulcers. But men will be men—the sum total of their genes and what they are taught. According to another clinician, when a mother admonishes her son who has hurt himself that big boys don't cry, she is teaching him stoicism. Crying is the negation of everything society thinks of as manly. A boy starts defending his manhood at an early age.

Take away stress you can take away symptoms

There is no question that stress plays a role in the etiology of duodenal ulcer. One prominent physician[5] has observed that many a man with an ulcer loses his symptoms the day he shuts up the office and starts out on a vacation. The problem is, the type of man likely to have an ulcer is the type least likely to take long vacations or take it easy at work.

The rest cure vs. the two-way action of Librax®. For most patients, the rest cure is as unrealistic as it is desirable. Still, the excessive anxiety must be dealt with. And here is where the dual action of adjunctive Librax can help. Librax is the only drug that

References: 1. Silen, W.: "Peptic Ulcer," in Wintrobe, M. M. *et al.* (eds.): *Harrison's Principles of Internal Medicine*, ed. 6, New York, McGraw-Hill Book Company, 1970, p. 1444. 2. Wolf, S., and Goodell, H. (eds.): *Harold G. Wolff's Stress and Disease*, ed. 2, Springfield, Ill., Charles C. Thomas, 1968, pp. 68-69. 3. *Ibid.*, p. 257. 4. Schottstaedt, W. W.: *Psychophysiologic Approach in Medical Practice*, Chicago, Ill., The Year Book Publishers, Inc., 1960, p. 163. 5. Alvarez, W. C.: *The Neuroses*, Philadelphia, Pa., W. B. Saunders Company, 1951, p. 384.

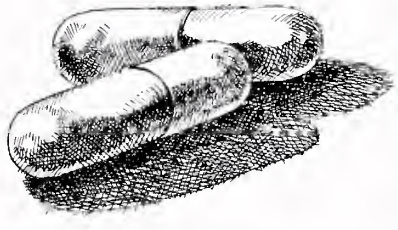


ombines the anti-
nxiety action of
ibrium® (chlordiaz-
oxide HCl) with the
ependable anti-
ecretory/anti-
asmodic
ction of Quarzan® (clidinium Br).

Protects man from his own hungry per-nality. The action of Librium helps reduce xcessive anxiety and thus helps protect the ulnerable patient from this type of overre-ction to stress. At the same time, the action Quarzan helps quiet the hyperactive gut, ecreasing hypermotility and hypersecretion.

An inner healing environment with 1 2 capsules, 3 or 4 times daily. Of course, ere's more to the treatment of duodenal cer than a prescription for Librax. The pa-ent—with your guidance—will have to ad-st to a different pattern of living if treat-ent is to succeed. During this adjustment eriod, 1 or 2 capsules of Librax 3 or 4 times ily can help establish a desirable environ-ent for healing.

Librax: It can't change man's nature. ut it can usually make it easier for men to pe with the discomfort of stress—both psy-ic and gastric—that can precipitate and acerbate the symptoms of duodenal ulcer.



Before prescribing, please consult complete product information, a summary of which follows:

Indications: Symptomatic relief of hypersecretion, hypermotility and anxiety and tension states associated with organic or functional gastrointestinal disorders; and as adjunctive therapy in the management of peptic ulcer, gastritis, duodenitis, irritable bowel syndrome, spastic colitis, and mild ulcerative colitis.

Contraindications: Patients with glaucoma; prostatic hypertrophy and benign bladder neck obstruction; known hypersensitivity to chlordiazepoxide hydrochloride and/or clidinium bromide.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

Precautions: In elderly and debilitated, limit dosage to smallest effective amount to preclude development of ataxia, oversedation or confusion (not more than two capsules per day initially; increase gradually as needed and tolerated). Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: No side effects or manifestations not seen with either compound alone have been reported with Librax. When chlordiazepoxide hydrochloride is used alone, drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally with chlordiazepoxide hydrochloride, making periodic blood counts and liver function tests advisable during protracted therapy. Adverse effects reported with Librax are typical of anticholinergic agents, *i.e.*, dryness of mouth, blurring of vision, urinary hesitancy and constipation. Constipation has occurred most often when Librax therapy is combined with other spasmolytics and/or low residue diets.

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MEDICAL SCHOOL NOTES

University of New Mexico School of Medicine

The University of New Mexico School of Medicine has received a five-year grant totaling almost $5 million from the U.S. Department of Health, Education and Welfare in an effort to bring better health care to the Indians of the Southwest through the development of an Area Health Education Center. The overall intention of the Center is to meet the unmet health education needs of the Indian people and others living within the area of the Navajo Reservation and its immediate surroundings by training pre-college Indian youngsters in medicine and allied health fields. The Center will be established in such a way as to insure that the Indian people will have a major voice in the program's planning, operation, and development; and training will combine aspects of the Indians' own culture and healing practices, such as the Medicine Man, with Western medical practices. The Navajo Health Authority in Window Rock, Arizona is in charge of the actual planning and implementation of the program, which will operate within the University's Health Science Center.

* * * * *

The University of New Mexico School of Medicine has been selected among all medical schools in the United States as a model for a new medical school in Japan. Five Japanese physicians, representing the Kawasaki Medical College and Educational Institution in Okayama, made the announcement at the end of a series of tours of U.S. medical colleges. A spokesman for the group said, "We wanted the U.S. school which was most advanced in the teaching of medicine." The University of New Mexico's size, newness, and integrated curriculum approach were all factors influencing the Japanese selection.

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I. Robert Lehman, Ph.D.
Harden M. McConnell, Ph.D.
Linus C. Pauling, Ph.D. (Nobel Laureate)
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DNA synthesis
Expression of genetic information
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Biochemical aspects of differentiation
Organ morphogenesis
Intermediary metabolism
Bioenergetics
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Neurobiology
Overview of genetics

In addition to the lecture presentations informal office discussions in small groups, on an elective basis, will be held with members of the faculty:

Paul Berg, Ph.D.—Tumor virus
Howard M. Cann, M.D.—Genetics and disease
Stanley N. Cohen, M.D.—Bacterial antibiotic resistonce
John W. Farquhar, M.D.—Atherosclerosis
John H. Frenster, M.D.—Tumor immunology
Halsted R. Holman, M.D.—Rheumotic disorders
Normon Kretchmer, M.D., Ph.D.—Growth; Inborn errors; Digestive enzymes
Joseph P. Kriss, M.D.—Nuclear medicine
Joshua Lederberg, Ph.D.—Genetics: opportunities and problems
John A. Luetscher, M.D.—Hypertensian, renin, and oldosterone
Luigi Luzzatti, M.D.—Chromosames ond disease
Roy H. Moffly, M.D.—Salt and water
Thomas C. Merigon, M.D.—Interferon
Linus C. Pauling, Ph.D.—Biology of woter; Nutrition
Judith G. Pool, Ph.D.—Blood coogulation
Peter Romwell, Ph.D.—Prostaglandins
Eugene D. Robin, M.D.—Molecular tronsport
Robert T. Schimke, M.D.—Enzymes and their actions; Hormones and their actions
Eric M. Shooter, Ph.D.—Nerve growth
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MEETINGS

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Montana Academy of Family Physicians

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Whitefish, Montana
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American Cancer Society, Colorado Division

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"CANCER IMMUNOLOGY TODAY"
Vail Village Inn, Vail, Colorado
January 24-26, 1973

For further information, write: American Cancer Society, Colorado Division, 1764 Gilpin Street, Denver, Colorado 80218.

American College of Emergency Physicians

EMERGENCY DEPARTMENT LEGAL INSTITUTE
Disney World Contemporary Hotel, Florida
January 11-12, 1973

SYSTEMS IN EMERGENCY CARE
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Montana Medical Association

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April 5-7, 1973

TENTH ANNUAL ROCKY MOUNTAIN BIOENGINEERING SYMPOSIUM
University of Colorado, Boulder, Colorado
May 7-9, 1973

Fee: $20.

For further information, write: N. B. Kindig, Department of Electrical Engineering, University of Colorado, Boulder, Colorado 80302.

Arizona Heart Association

16TH ANNUAL CARDIAC SYMPOSIUM
Mountain Shadows Resort Hotel
Scottsdale, Arizona
January 19-20, 1973

For further information, write: Arizona Heart Association, 1720 East McDowell Road, Phoenix, Arizona 85006.

University of Miami School of Medicine

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March 19-22, 1973

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MASTER INTERPRETATION OF CLINICAL ELECTROPHYSIOLOGY
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May 29-31, 1973

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For further information on these two courses, write: University of Miami School of Medicine, Division of Continuing Education, P.O. Box 875, Biscayne Annex, Miami, Florida 33152.

American Society of Contemporary Medicine and Surgery

ANNUAL MEETING
Fontainebleau Hotel, Miami Beach, Florida
February 25-March 3, 1973

Fee: $50 for members and $125 for non-members.

For further information, write: Miss Virginia Kendall, 30 North Michigan Avenue, Room 1629, Chicago, Illinois 60602.

Dallas Southern Clinical Society

SPRING CLINICAL CONFERENCE
Statler Hilton Hotel, Dallas, Texas
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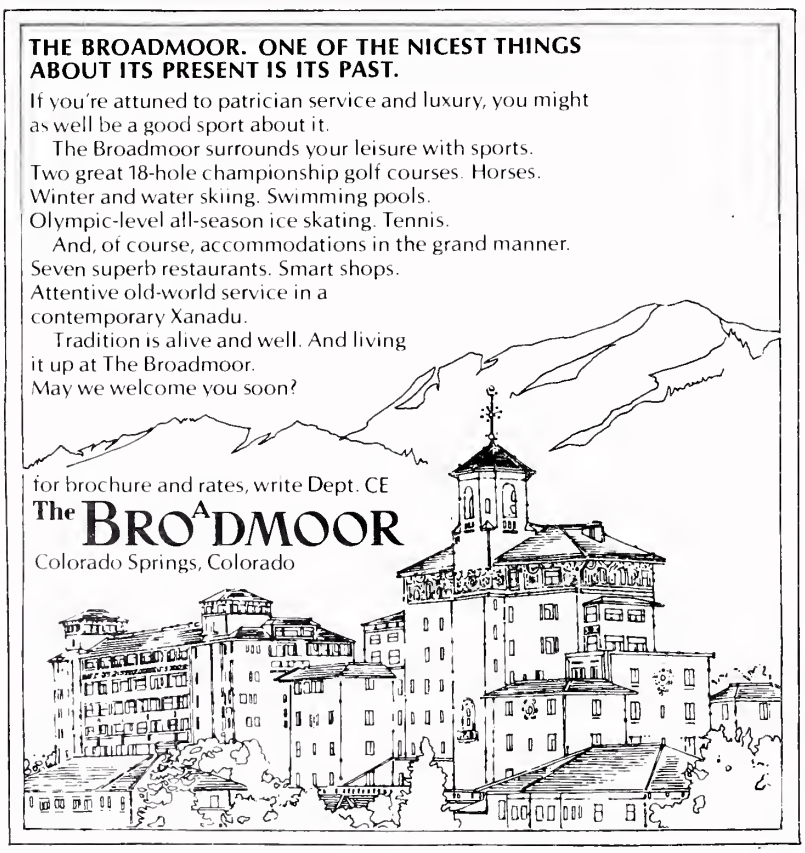
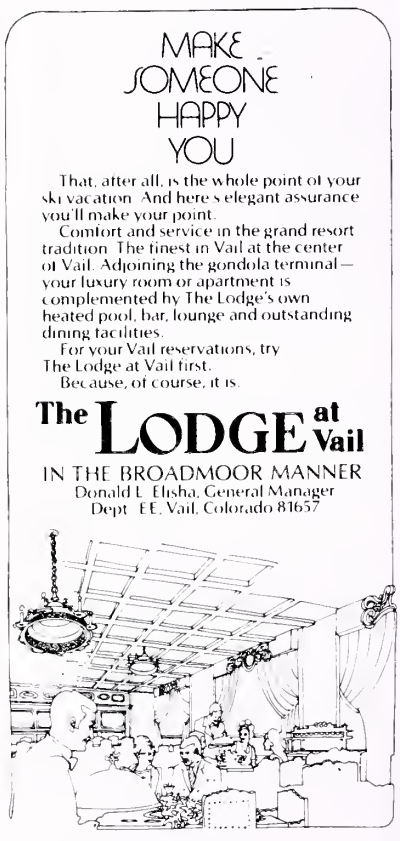
For further information, write: Dallas Southern Clinical Society, 433 Medical Arts Building, Dallas, Texas 75201.





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International Medical Assembly of Southwest Texas

37TH ANNUAL MEETING
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YOU CANNOT PLEASE all of the people all of the time. Even the politicians have quit trying. The old cliché certainly applies to presentation of scientific material to physicians. Anyone who has ever had the experience, even briefly, of arranging a medical scientific program, whether it be for a hospital conference or a state meeting, knows the difficulty of finding a topic which will be interesting to all. The more specialized becomes medical practice, the more difficult becomes the problem of finding a medical subject of universal interest.

This fact has always been the dilemma of the editorial staff of the *Rocky Mountain Medical Journal*, just as it has always been the problem of the editor of any medical journal whose audience is a total physician population. Thus the corollary—it is unreasonable for an individual doctor to expect a general-type journal to be as consistently interesting to him as is his specialty journal.

The *Rocky Mountain Medical Journal* has always had the same **purpose.** Like all medical journals, it aims to disseminate scientific information to the physician to help him care for his patient. The medical journal is important in the continuing education process, and its importance increases with the acceleration of medical knowledge and the increasing emphasis on continuing education. In addition, the *RMMJ* is the official journal for the six state medical societies it repre.
and, as such, it publishes the significant decisions and actions of these societies and the achievements of the individual members.

The **plan** of your *Rocky Mountain Medical Journal* is to attempt to make the scientific material interesting to its readership by capitalizing on its regional advantages. There are regional values and interests. There is interest in what one's associates in his area experience or accomplish in medical practice. There is interest in medical problems peculiar to a region. There is interest in the activities of one's peers in a state or area other than one's own. There is interest in the total level of professional activity of an area or region as reflected in publications in the journal.

There is a **place** for a journal whose readership is the total physician population. There is a need for the journal which publishes articles dealing with all phases of medicine. The aim of the *Rocky Mountain Medical Journal* is to present this wide variety of subject matter in a concise, compact, readable, and interesting manner so that it is an easy, practical, and pleasant way for the physician to keep informed of progress in the total practice of medicine. The goal is to furnish the doctor an enjoyable way to maintain the broad knowledge of medicine which he possessed when he graduated from medical school. Let us be honest, the disparagers of overspecialization have some basis for their criticisms.

There is a **promise.** In this issue we have published a grouping of articles to do with preventive medicine and public health. Obviously this aspect of medicine is the primary interest of only a small fragment of the readership. Admittedly there are many physicians who have always been prejudiced toward topics in these fields. However, we

submit that every physician who peruses or reads this issue will recognize a new, or interesting, or practical piece of information of value to himself or his patients. Although the *Journal* cannot be all things to all people, the *Journal* promises to have something worthwhile for every physician, each issue.

And so, for the *Rocky Mountain Medical Journal* there is a **purpose**, a **place**, a **plan**, and a **promise**. For the editorial staff there is also a **privilege**—the opportunity to serve the physicians and in turn the practice of medicine in the six states for which the *RMMJ* is the official publication. We accept the responsibility of this privilege. For this privilege, we thank you.

Physicians Recruitment for Underserved Areas

A PROGRAM FOR recruitment of residents completing training into areas of medical need, in the Rocky Mountain region, has been established in the Office of the Associate Dean for Graduate Medical Education of the University of Colorado School of Medicine. This program is called the Community Practice Recruitment Program (CPRP).

The School of Medicine has frequently received requests for physicians to locate a practice in underserved communities in the state and region. At the same time, residents completing training have had difficulty finding practice opportunities which appealed to them. An opportunity to provide a needed service for both underserved communities and for uncommitted residents was apparent. A mechanism was needed to bring the two together effectively.

All Medical Center residents, nearing completion of their training, will be contacted and asked to submit their names to the Associate Dean if they are interested in practice opportunities in the Rocky Mountain region. Lists of interested residents are then compiled by specialty. Requests for physicians from communities received by the Medical Center will be directed to the Associate Dean. The Associate Dean sends the list of residents names, in the specialty requested, to the requesting community.

The community is responsible for contacting the individual residents and providing the necessary information about the practice opportunity available. Although the community will design its own method for recruiting the residents, a suggested format for presenting this information about practice opportunities is recommended.

Communities are advised to invite the residents and spouses to a dinner and an informal information session at which the community presents itself. It is suggested that the community be represented, at least, by a member of the hospital board or administration and a young practicing physician and wife. The residents can judge the opportunities for practice in the community through the information presented and through a question and answer session obtain the specific details. The presence of the community practitioner's wife is essential because it is well established that the resident's wife contributes significantly to the decision concerning a practice location. This collaborative program appears to have potential and helps fulfill the responsibility of the Medical School to help provide medical care for our state and region.

John T. Ashley, MD
C. L. Shmock, MD
Denver, Colorado

Suicide rates in Boulder County, Colorado

*Implications for physicians**

Edward Lang, MA, and James Selkin, PhD, Denver, Colorado†

IN 1971, THE SUICIDE RESEARCH PROJECT of Denver General Hospital met with Broomfield, Colorado community leaders to discuss suicide prevention. In part, the meeting reflected a concern that the number of suicides in the Broomfield community was unusually high. As a result of this meeting, a study was initiated by the Office of Suicide Research to establish the suicide rate and characteristics in various communities within Boulder county. These rates were then compared to that county's rates for recent years (1969-1971) and to the rates for other areas within Colorado and the United States. This article reports the results of the study, and discusses the implications for physicians in private practice.

The area studied, Boulder county, is the sixth largest county in Colorado with a current population of about 140,000. This is roughly six per cent of the population of Colorado. The county is rapidly becoming urbanized and contains three major population centers, the cities of Boulder, Broomfield, and Longmont. A major state university with a student enrollment of 20,000 is located in the city of Boulder.

Boulder County Suicide Rates

Information concerning the number, location, and characteristics of persons who committed suicide in Boulder county was collected for the years 1969, 1970, and 1971. Estimates were then made of the suicide rates for the total county, the three major cities, and the remainder of the county, excluding the three cities (Table 1).

The Boulder county suicide rates vary a great deal as expected. The county rate increases 13 per cent (1969-1971) while individual communities show much greater changes both up and down from year to year. Community suicide rate differences are also quite variable in any one year. The city of Boulder accounts for about 50 per cent of the county population and most of the suicides. The 1971 suburban community suicide rates (i.e., Boulder, Broomfield, and Longmont) are much higher than the more rural Boulder county (other) rates.

Methods of Suicide

Table 2 presents frequency and per cent distributions for the primary methods of suicide in Boulder county in the period 1969-1971. In five of these 77 cases more than one method was used and typically involved drug and alcohol ingestion in addition to one other method. Alcohol or drug ingestion was involved in 15 of the 77 cases. The use of particular methods of suicide varies over time and between locations. In 1968, about half of all suicide deaths in the U.S. were due to firearms, with drugs, poisoning, and asphyxiation accounting for about 25 per cent, and hanging, suffocation, and strangulation another 15 per cent. The Boulder county suicide method per cents are similar to the U.S. per cent for

*This work was financed in part by NIMH Research Grant No. 1-RO1-MH18164.

†Edward Lang is Psychology Intern, Denver Department of Health and Hospitals, and Dr. Selkin is Director, Suicide Project, Denver General Hospital.

TABLE 1

BOULDER COUNTY SUICIDE RATES

Area	Year	Number of Suicides[a] Res.	Non-Res.	Population	Suicide Rates[b] Res.	Total
Boulder County (Total)	1969	19	5	126,800	15.0	18.9
	1970	21	3	131,900	15.9	18.2
	1971	23	6	135,250	17.0	21.4
City of Boulder	1969	15		63,700	23.6	
	1970	13		66,900	19.4	
	1971	13		71,600	18.2	
City of Broomfield[c]	1969	0		7,900	0	
	1970	2		8,300	24.1	
	1971	3		8,600	34.9	
City of Longmont	1969	2		21,800	9.2	
	1970	5		23,200	21.6	
	1971	6		24,800	24.2	
Boulder County (Other)	1969	2		33,400	5.9	
	1970	1		33,500	3.0	
	1971	1		30,250	3.3	

Note: The sum of the population figures and resident suicide figures for the three cities and the county (other) is equal to the county (total) figures.

[a] The number of suicides is presented for residents (Res.) and non-residents (Non-Res.) of Boulder county.
[b] The suicide rates (number of suicides per 100,000 residents) for Boulder county (total) include a total rate (residents and non-residents) and a rate for residents. The remaining city and county rates are for residents only.
[c] The Broomfield suicides include two persons (one each in 1970 and 1971) who lived in the community and died outside the county as a result of a suicide attempt within the county.

firearms, roughly 10 per cent higher for carbon monoxide, and 10 per cent lower for hanging. There is often a wide variation in method between geographical areas. These differences reflect restrictions on particular lethal agents (e.g., guns) as well as sex-related choices and individual preferences.

TABLE 2

METHODS OF SUICIDE USED IN BOULDER COUNTY 1969-1971

Method	Frequency	Per Cent
Gun	38	49
Carbon Monoxide	20	26
Poison/Drug	9	12
Cutting/Piercing	5	7
Hanging	4	5
Auto	1	1
TOTALS	77	100

Suicide Rate Comparisons

Figs. 1 and 2 present a breakdown of the Boulder county, Colorado, and U.S. suicide rates by age, group, and sex. The major contribution to the county "excess" rate compared to Colorado and the U.S. is from the male population between 20 and 70 years of age. Particularly high rates exist in the 20-29 and 60-69 age groups. It is not known specifically what variables influence this "excess" rate, but some tentative possibilities are mentioned later.

Further suicide rate comparison data are provided in Figs. 3, 4, and 5 for Colorado (urban, suburban, and rural areas) and for selected states and cities. The data in Fig. 3 show the typical urban-rural (high-low) rate variation. Figs. 4 and 5 illustrate the variability in rates between particular states and cities in 1960 and 1970. The 1960 Colorado and Denver rates are roughly midway between the lowest and highest reported rates for several states and cities.[1] Both Colorado and Denver experienced a significant rate increase between 1960 and 1970. The 1970 Denver suicide rate is about two and one-half times the overall U.S. rate.

County Mental Health Services

In the period 1969-1971, a small mental health clinic in the city of Boulder and a satellite clinic in the city of Longmont pro-

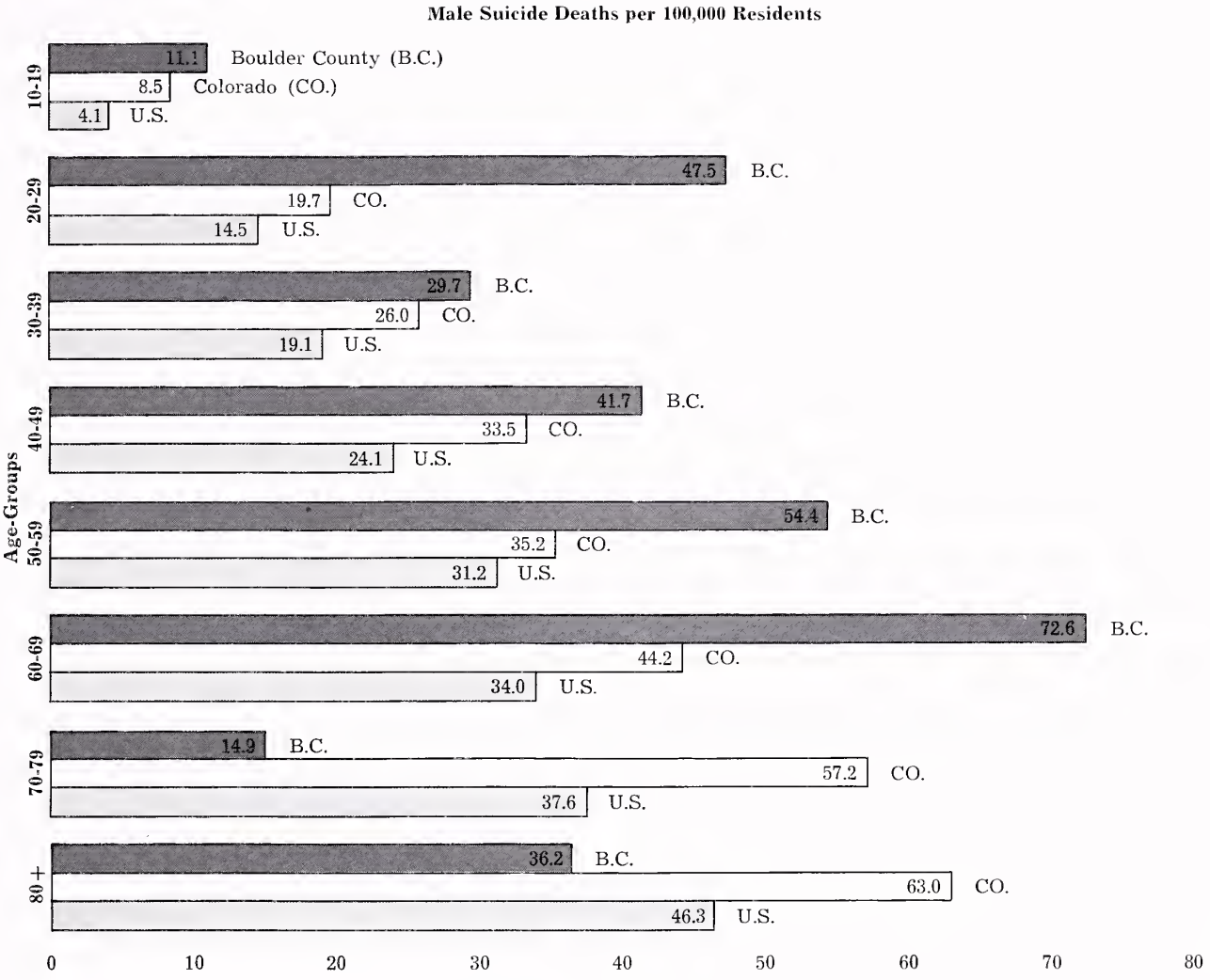

Fig. 1. Suicide Rate Comparison for Males

vided services to county residents. The coroner's records indicated that only one subsequent suicide was seen in each year (1969-1971) because of personal problems and none of these three persons was seen in the Boulder or Longmont clinics.

Within the last year a new NIMH-funded comprehensive community mental health center, staffed by over 50 professionals and additional volunteers, was completed. A full range of services is provided including crisis counseling, inpatient service, a day hospital program, 24-hour emergency psychiatric coverage, consultation and educational services, special and perceptual education programs for children, and research support activities. A small outpatient activity also has started in Broomfield. Contacts with and referrals from other segments of public service (e.g., police, schools, doctors, ministers, social service agencies) reflect an active effort to publicize the new mental health facility. A telephone help line service ("Guideline"), manned by trained volunteers, is a part of the problem and crisis-oriented service outreach. Whether or not these advances will be effective in reaching potential suicide victims remains to be seen.

Conclusions

The Boulder county suicide rate is high relative to the national average. Very high rates are present for men, especially in the 20-29 and 60-69 age groups. At this time, it is not possible to explain why the county rate is elevated. Further analysis may clarify the situation somewhat, but it is expected that

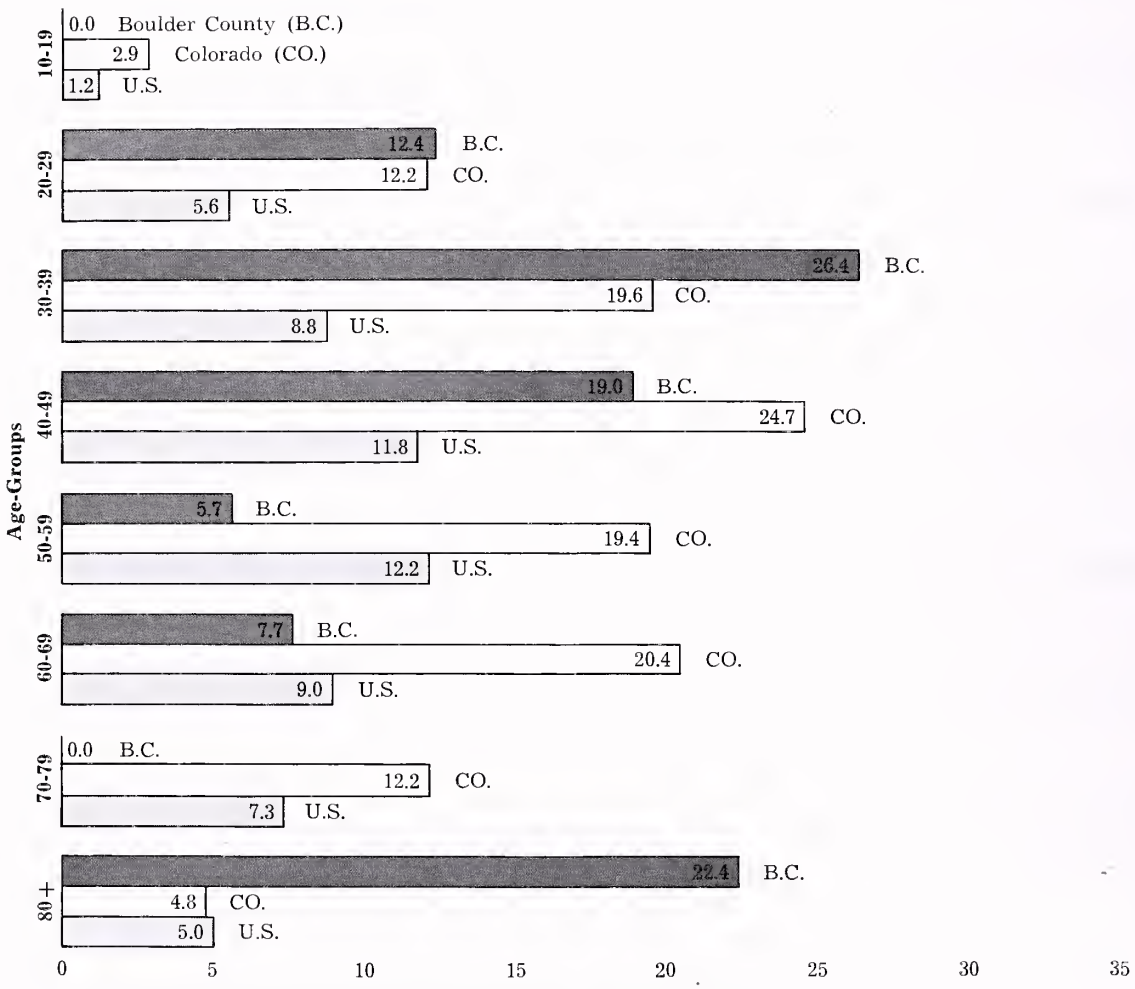

Fig. 2. Suicide Rate Comparison for Females

a substantial amount of unexplained variation would remain. The high rate may be due, in part, to the rapid county growth and associated shift from a predominantly rural to suburban life-style. Older males, who have spent their lives farming or ranching, may find the present environment particularly stressful. In addition, there are thousands of young men in the city of Boulder at the University. The college experience is a time of crisis for many young people, involving separation from parents and home, demands for academic performance, a search for a meaningful existence, and interpersonal conflicts.

Returning to the issue of the Broomfield city suicide rate, it is apparent that the actual number of suicides of persons living within the city boundaries is not unusually high. However, when the suicides which occurred fairly close to the community are included, the number of suicides in the period 1969-1971 increases to about ten. This number of suicides in close proximity to Broomfield is probably what led several persons to believe that the Broomfield suicide rate was high.

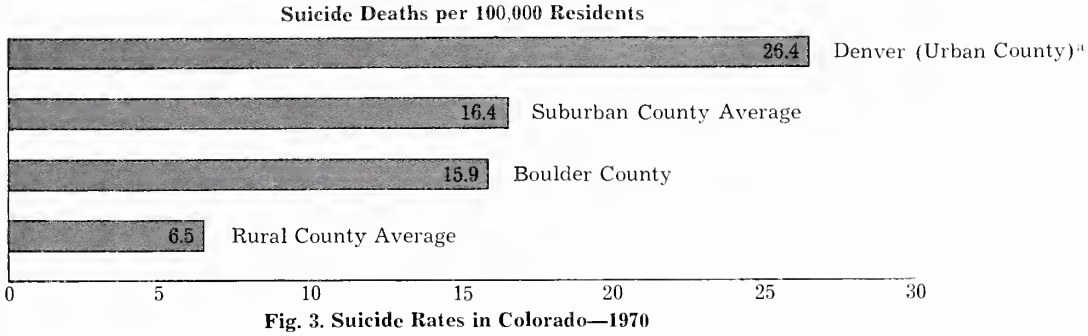

Fig. 3. Suicide Rates in Colorado—1970

[a] The population limits are Urban, population greater than 300,000; Suburban, population between 85,000 and 300,000; Rural, population less than 85,000.

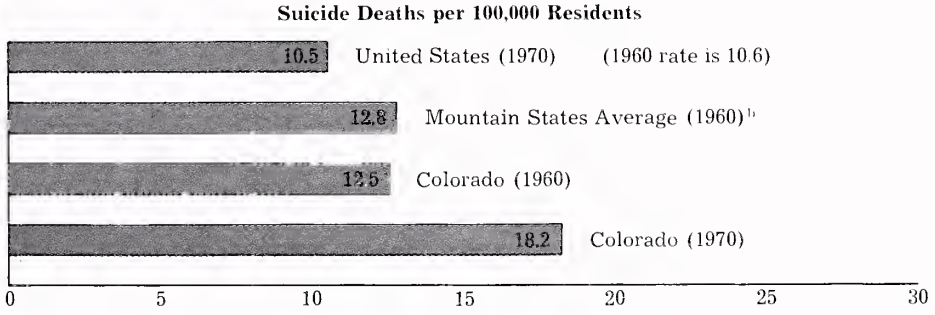

Fig. 4. Suicide Rates for Selected States and the U.S.

[b] The states included are Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, and Nevada (Dublin, 1963[1]).

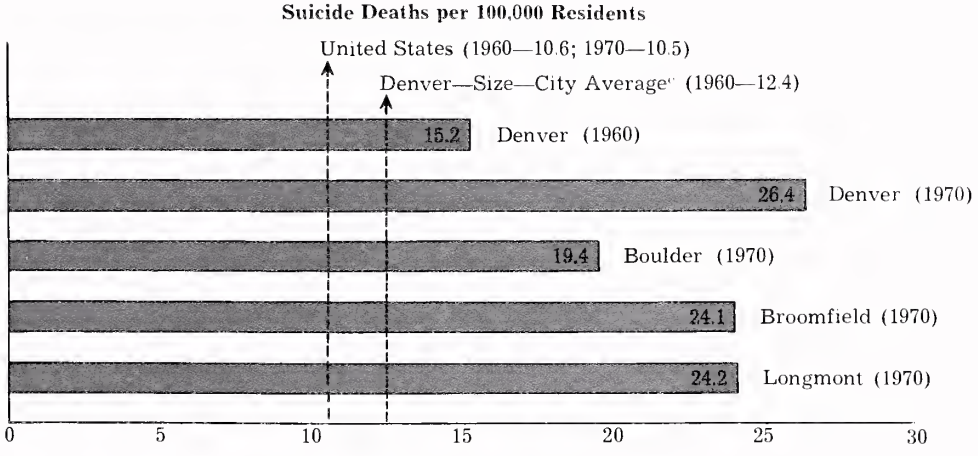

Fig. 5. Suicide Rates for Selected Cities

[c] Cities included are Atlanta, Ga., Boston, Mass., Birmingham, Ala., Buffalo, N.Y., Cincinnati, Ohio, Denver, Colorado, Fort Worth, Texas, Indianapolis, Ind., Kansas City, Mo., Long Beach, Calif., Louisville, Ky., Memphis, Tenn., Minneapolis, Minn., Oakland, California, Phoenix, Arizona, San Antonio, Tex., San Diego, Calif., Seattle, Washington (Dublin, 1963).

The Physician's Role

Robins et alia[2] indicate that nearly 70 per cent of the individuals who completed suicide communicated their suicidal intent to other persons, many of whom were physicians. This vital fact suggests that physicians can play a major role in suicide prevention. The following guidelines are suggested:

A. Pay Special Attention to:

1. Older patients, especially men over 45
2. Patients with drinking and drug abuse problems
3. Patients whose family lives are falling apart through divorce or other kinds of separations
4. Patients with chronic illnesses
5. Patients who live alone
6. Patients who reveal vegetative depressive signs such as poor sleeping and excessive weight loss or gain

B. Ask Questions:

1. Patents are relieved and never insulted or angered when asked: "Have you been concerned about suicide?" or "Have you ever thought about hurting yourself?"
2. If the answer to the first question is yes, find out more about the patient's life situation. Most suicidal patients are badly in need of someone whom they can trust, and most suicidal patients will reject psychiatric or mental health care.
3. Check your prescriptions in view of the patient's responses to your questions.
4. Know about the availability of suicide prevention services in your community.

Summary

All physicians in the Rocky Mountain area should remain painfully aware that suicide rates in some of our states and cities are consistently and significantly above the national average. Statistical proof for one county has been presented, and some guidelines to enable the physician to take an active and significant role in suicide prevention efforts in his community have been outlined. A suicide avoided is a world of pain escaped. •

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LEUKEMIA BOOKLET FOR PHYSICIANS

To help parents of children with this often-fatal disease, the Leukemia Society of America has issued a 20-page publication entitled "Leukemia: A Guide to the Management of the Disease". The booklet is intended for the physician to pass on to the parents of leukemia-stricken children with the purpose of helping them find the courage and strength to cope with their child's disease and its likely consequences. Free copies of this booklet may be obtained by writing Leukemia Society of America, State and Metro Denver Chapter, 601 Broadway, Suite 116, Denver, Colorado 80203, or by calling (303) 255-2814.

Parathion poisoning

A case report

F. A. Irani, MD, and P. A. Feil, MD, Deming, New Mexico

PARATHION, O,O-diethyl-O-p-nitrophenyl thiophosphate, is one of the most commonly used organophosphorus insecticides in this country. It is a highly toxic compound which inactivates cholinesterase enzymes in the tissues with a marked accumulation of acetylcholine in the effector organs with clinical symptoms and signs resulting from excessive cholinergic stimulation. An average adult need ingest, inhale, or come into contact with two to four drops of parathion to suffer a lethal poisoning. Parathion has been implicated as the number one killer in insecticide poisoning, and it is more common in children and unsuspecting individuals who are not familiar with it.

CASE HISTORY

A 21-year-old Mexican National, was brought to the Emergency Room at the Mimbres Memorial Hospital in coma. His family members said that he had become unconscious the previous evening, prior to which he had vomited food that he had eaten earlier. On closer questioning we were told that he worked on a farm just north of the Mexican border and had been spraying insecticides for the last two days.

On physical examination, the patient was unresponsive and cyanotic. Blood pressure was 120/0, pulse rate was 32 and irregular; shallow respirations were 10 per minute, and temperature was 97°F. The pupils were constricted and fixed. The neck was supple, chest showed diffuse fine and coarse rales, with diminished air entry into both lungs. The abdomen was soft and scaphoid. The extremities were cold. The patient was incontinent of urine and feces.

Because of the slow pulse, the patient was given 0.6 mgm of atropine intravenously; Ringer's lactate was begun. Frothy, pinkish fluid was obtained from an endotracheal tube.

Because of the question of insecticides, the possibility of Parathion poisoning or some similar poisoning was entertained. 1.4 mgm more of atropine was given intravenously and 1 gram of Protopam (pralidoxime chloride) was also injected slowly intravenously. Blood pressure rose to 120/60 and the pulse rate to 100 per minute but was still irregular. A nasogastric tube was passed and he was catheterized. The patient was admitted.

The patient was grossly acidotic from inadequate circulation and poor ventilation. Sodium bicarbonate, 12 ampules of 44.6 millequivalents each, was given intravenously over the next four hours to correct the blood gas abnormalities (Table 1).

TABLE 1

ARTERIAL BLOOD GASES

	Admission	4 hours later	Normal
pH	6.91	7.42	7.35 - 7.45
PCO_2	67.5	45.1	40
PO_2	40	48	60 - 90
HCO_3	14.3	27.5	24 - 26
CO_2	8.2	29.6	26 - 33

The patient developed hemoglobinuria and hematuria. The urine output was kept over 100 cc per hour to prevent any precipitation of the haeme compounds in the renal tubules. A central venous pressure line had been introduced. The central venous pressure was 0, and fluids were administered at the rate of 1 liter every six hours or more to maintain the urine output over 100 cc an hour. The patient was given 1 gram of Keflin intravenously in each liter of fluid.

About six hours after admission, the patient's mental state had cleared enough so that he was conscious and cooperative but still disoriented to time and space. The endotracheal tube was withdrawn. The patient was placed on nasal oxygen and observed closely. He required 2 mgm of atropine and 1 gram of Protopam for a falling blood pressure that day. By the following morning, he was still conscious and cooperative and he then said that, while transferring Parathion from one

barrel to another, he had spilled some on his clothing and his hands. His clothing had been removed immediately on admission and he had been washed down thoroughly so that that source of contamination had been eliminated. The chest x-ray on admission showed diffuse infiltrates in both hilar regions with densities at the bases which were interpreted as a bronchopneumonic type of infiltration. With coughing, the patient brought up a fair volume of pinkish sputum. The lungs cleared and the x-ray of chest returned to normal on the fifth hospital day. The cholinesterase activity levels had not been obtained at the time of the patient's admission to the hospital. However, one obtained on the date of discharge showed an activity which was 82 per cent of normal. He was discharged and told to avoid coming into contact with Parathion and other similar insecticides for at least six months. He was seen again 11 days later and was completely recovered.

Summary

This patient was near death when he was first seen in the emergency room. Because of the awareness of insecticide poisoning in this community, his fatal course was altered and he recovered. We hope that other physicians practicing in rural communities include the possibility of poisoning from insecticides high in their differential diagnosis whenever they see a semi-comatose or comatose patient. •

Consumer health education*

A rural reconnaissance

Donald L. Erickson, MPH, MEd,† Cheyenne, Wyoming

Since its inception in 1966, the Mountain States Regional Medical Program has been slowly, but deliberately, developing the capability of health workers and consumers to design programs for improving the quality of health care in the mountain states of Wyoming, Montana, Nevada, and Idaho. During the past five years, our program development efforts in these states have enriched our understanding of consumer concerns and interests as well as health manpower needs and problems of organizing and maintaining health care services. Promoting a sense of "health consumer citizenship" in the Rocky Mountain region has been, and will continue to be, a herculean task, particularly considering the paucity of community and school health activities in this region. However, as a health planner committed to the educational process as the *sine quo non* to desirable social change, I remain optimistic that consumer responsibility for health and well-being is an attainable goal.

The Rural Area

The geographic area stretching from New Mexico and Arizona to Idaho and Montana is punctuated by plains, mountains, and desert. Sparse population, limited metropolitan areas, rugged terrain, vast distances, and inadequate transportation give rise to unique problems for those of us who are attempting to improve the accessibility and quality of health care services. Health planning on a regional basis is compounded by vast distances, unpredictable weather patterns, and poor commercial transportation services. Consequently, smaller communities tend to be provincially oriented.

*Condensed from statement presented to the President's Committee on Health Education at Public Hearing, January 17, 1972, Denver, Colorado.

†Mr. Erickson is Associate, Educational Development, Western Interstate Commission for Higher Education, Mountain States Regional Medical Program, Cheyenne, Wyoming.

Although health personnel appear to be flocking to the few metropolitan areas, it is becoming increasingly difficult to attract physicians and other health workers to small, isolated communities. Long-standing statistics give vivid testimony to the general movement of physicians away from communities of less than 2,500, creating serious gaps in the availability of primary care services. This lack of physician services is particularly acute in Montana, Idaho, and Wyoming where approximately 45 per cent of the population lives in communities of 2,500 or less.[1] This discussion is directed to conditions and concerns in these states in which the population is primarily rural.

Wyoming, Montana, Idaho, and Nevada by numerous definitions are "medically underserved". In 1969, the national ratio of physicians per 100,000 population was 163; within the four-state area the rate was 105.[2] While older physicians offering primary care in rural areas are retiring, young physicians do not replace them. Instead, they settle in urban areas.[3] Maldistribution of personnel results in insufficient numbers and kinds of health workers in extensive rural sections.

Few organized community health units (local health departments) exist in these states. To illustrate this point, in Wyoming there are 23 counties. Of this number, two counties have local health units, neither of which employ a full-time health officer. Ten Wyoming counties are without public health nursing services. None of Wyoming's local health units nor the State Health Department employs a public health education specialist. Needless to say, developing comprehensive consumer health education in rural areas will require considerable tooling-up of health care services and personnel. It is doubtful that traditional public health units (local or regional health departments) are feasible in these states. Lack of financial commitment for health affairs, sparse population, and the unwillingness of health care personnel to live and work in rural areas are major obstacles. Establishing behavior patterns conducive to "consumer health citizenship" is therefore dependent on approaches which recognize and effectively deal with these constraints. A closer examination of consumer characteristics will shed some light on the complexity of health care planning in rural areas.

Consumer Characteristics

Who is the consumer of health care services in the four-state area and what does he actually know about health and health care? To seek answers to these questions, the Mountain States Regional Medical Program, with the assistance of the System Development Corporation of Santa Monica, California, conducted a mail survey of 9,600 households in Wyoming, Montana, Nevada, and Idaho. Nearly 50 per cent of the households responded. The full report of the survey has been published,[4] and the principal findings and conclusions will be summarized.

Economics of Health Care

The average yearly income for consumer households studied was found to be slightly above $6,000. There is a consistent relationship between income and attitudes toward health care and ability to meet the costs associated with that care. Those with annual incomes below $9,000 (61.5 per cent of the respondents) expressed disproportionate concern that medical care is too expensive, regular dental checkups are too expensive, and regular physical examinations are too expensive. Those households with total annual incomes under $6,000 also were, by and large, underinsured. Throughout the region approximately 40 per cent felt that they had insufficient financial means to cover the costs of major health and medical expenses.

Looking at the same questions from a population perspective, a similar pattern is revealed—the smaller the community, the greater is the economic impact of preventive medical care. This fact is most pronounced in communities with populations of 1,000 or less. Remote ruralness has other interesting impacts. While approximately 15 per cent of the respondents for the entire region claimed they had to travel too far for medical care, almost half of all consumers whose households are in communities of 1,000 or less face this problem. These people normally travel

out of state for medical care at a rate three times greater than do residents of communities with population of 25,000 or more. They are also at a disadvantage when it comes to hospitalization. Only 17 per cent are within ten miles of a hospital and such a facility is at least 25 miles away for more than 50 per cent of the households.

Knowledge levels and practices of this rural public pose some cogent questions for those concerned with consumer education and preventive medicine. Greatest familiarity is expressed with the warning signals for cancer (57 per cent), next for heart disease (42 per cent), and least for stroke (28 per cent).‡ Education level enhances knowledge, but even so, only 65 per cent of the college attendees are familiar with cancer signals, 49 per cent with heart disease signals, and 33 per cent with stroke signals. Age makes a difference in familiarity with warning signals. The middle age group (40-54) was most familiar with all three. However, the youngest group (under 40) was more familiar with cancer signals than the oldest (over 55), and the opposite held true with regard to heart disease and stroke. Approximately 80 per cent considered regular medical and dental examinations to be necessary, while almost one-half have neither regular medical nor dental examinations. More than nine out of ten claim that smoking is hazardous, but 43 per cent reported that they smoked.

The educational needs from these responses are apparent. Moreover, the data suggests that differential approaches to consumer education may be in order. These differential approaches would consider the type of method as well as its content and should be examined for appropriateness on the local level. For smoking dangers and for the importance of preventive examinations, the disparity between belief and practice suggests the need for imaginative, aggressive programs.

Desire for information pertaining to the prevention and detection of heart disease, cancer, and stroke is high and surprisingly uniform for all areas within the region with interest being expressed by between 80 and 90 per cent of the consumers. The majority of the consumers felt that information received from their physicians was adequate, although approximately 17 per cent felt that not enough time or not enough information was given. Primary sources of information were listed as magazines, television, newspapers, radio, and special literature, in that order. These, however, are not the preferred media. Special literature was at the top of the list, followed by television, magazines, educational movies, and talks with health professionals. The rural consumer selected adult education courses and contacts by voluntary health workers in a higher proportion than did consumers residing in the larger cities.

The Mountain States consumer feels that medical services are generally satisfactory; but for approximately 25 per cent of consumers, the preventive measures that would alleviate long-range socioeconomic costs are considered to be beyond the consumer's economic grasp. Those who claim they cannot afford medical care are most likely to indicate dissatisfaction with the care they do receive.

Finally, the consumer's desire for more information, his behavior in seeking health care, and his assessment of available care all suggest further analysis particularly on an area basis within the region. Variations observed in terms of population groupings, educational levels, and income levels highlight the need for more refined analysis.

Recommendations

In regard to the need for consumer health behavior analysis, health planners and officials are poorly informed about consumer health knowledge, misconceptions, opinions, and attitudes. Of course, there are broad generalizations advanced about consumers, but for the most part our understanding relative to consumer predispositions and knowledge is wholly inadequate. Hence my first recommendation is the establishment of a network of Consumer Health Behavior Study Centers affiliated with schools of public health and/or other health science education centers. These study centers should be geographically

‡Question pertained to warning signals of cancer, heart disease, and stroke; other diseases and conditions were not included in the question.

placed so as to assure analysis of multiple consumer groups and life styles.

A second recommendation pertains to schools of public health, which unfortunately, are reluctant to place graduate students for field practice in rural areas with limited resources. Although their reasoning is understandable, i.e., students will not obtain a fully rounded experience, this stance is most discouraging. Public health students could be helpful in identifying health care needs and stimulating rural consumers to get actively involved in health affairs. Furthermore, when public health trainees graduate, they might be willing to move to rural areas if they were exposed to the advantages of rural life.

The small community hospital is the subject of a third recommendation. The community hospital is an ideal setting for the placement of health education specialists to develop comprehensive health education activities in rural areas. A complete program could be developed which would harmonize patient information needs with school health instruction, adult education, and traditional public health education activities. To encourage hospitals to carry out this function of comprehensive community health education, financial assistance at the national level would be essential.

My final comments relate directly to the Panel and the President's Committee on Health Education. Throughout the years, numerous federal health projects were created to improve our nation's health. A large per cent of these national efforts, such as chronic disease control, maternal and child health, migrant health, Indian health services, comprehensive mental health centers, immunization programs, and others, have consumer health education components. This approach has led to health education through bits and pieces rather than fostering a comprehensive health education program. Fragmentary approaches often have low payoff. It seems that the President's Committee on Health Education is in a position to make a positive contribution to the physical, mental, and moral well-being of the American public. History will tell us whether the Committee's contribution is productive or irrelevant. The charge is clear; we can't have more of the same. The time has come for us to be accountable for our efforts.

Those of us in the public health education enterprise, if I may call it that, are striving hard to do our job. We would all agree that we are quite busy. However, in the words of Thoreau: "It is not enough to be busy; so are the ants. The question is: What are we busy about?" •

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Coal mining and cancer of the stomach*

Nathaniel M. Matolo, MD, William M. Gorishek, MD, Virginia Moslander, BA. and John A. Dixon, MD, Salt Lake City, Utah

THERE IS EVIDENCE that the incidence of gastric carcinoma has been steadily decreasing in the United States and England in the past four decades.[1-6] Despite this definite but unexplained decline, it continues to remain second only to cancer of the colorectal area in frequency of malignant neoplasms of the gastrointestinal tract. Gastric carcinoma afflicts mostly persons over 45 years of age, and men are affected two to three times more often than women. Atrophic gastritis, chronic gastritis, gastric polyps, hypochlorhydria, achlorhydria, pernicious anemia, and dietary and hereditary factors have been implicated as possible precursors of gastric malignancy in man.[1,7-10] Some reports in the medical literature[11-14] have suggested that there is increased incidence of gastric cancer in patients with blood group type A. The investigations of Breslow[15] and Haenszel[1] have disclosed a high incidence of gastric malignancy in certain geographic and ethnic populations in Japan, Finland, and Iceland.

Dixon et alia[16] in their analysis of gastric carcinoma cases in Utah noted a high incidence of the disease in Carbon County, a soft coal mining community. The following is a detailed epidemiologic study and a report of the incidence of gastric cancer in Carbon and Emery Counties, both coal mining regions, and in an adjacent non-coal mining area, Utah County.

*From the Department of Surgery, University of Utah College of Medicine and the Utah State Tumor Registry, Rocky Mountain States Cooperative Tumor Registry, Salt Lake City, Utah. Presented at the Annual Scientific Meeting of the Utah Chapter of the American College of Surgeons, January 29, 1971, Salt Lake City.

Materials and Methods

This study includes all patients with reported gastric cancer in Carbon and Emery Counties from January 1965 to December 1969. A detailed study of these patients was undertaken with regard to sex, age, ethnic group, nativity, occupation, diet, house-heating systems, blood type, family history of cancer, and socioeconomic class. A similar study was carried out in Utah County, which is adjacent to Carbon and Emery Counties but without a coal mining industry. All patients included in this study had definite histologic diagnosis of gastric cancer. The data were obtained from the Utah State Cancer Registry, which includes records of all cancer patients admitted to any hospital in the state beginning in 1966. Information was also obtained from the patient's hospital records, patient's physician records, Utah State Division of Health, death certificates, Price City Hall records, and U.S. Bureau of Mines. Patients' hospital records were obtained from the Carbon County, Utah Valley, Holy Cross, Latter-Day Saints, St. Mark's, Salt Lake Veterans Administration, and the University of Utah Hospitals. Follow-up of the cancer patients was accomplished in 95.8 per cent of Carbon County cases, 86 per cent of Emery County cases, and 84.2 per cent of Utah County cases. The incidence in Carbon and Emery Counties was compared with that in Utah County, the State of Utah, and the United States.

TABLE 1
GASTRIC CANCER
ANNUAL INCIDENCE AND SEX RATIO
1965 THROUGH 1969

Region	Population	Gastric Cancer Cases*	Annual Incidence Rate Per 100,000	Male vs Female Ratio
Carbon County	16,700	21	25.1	4:1
Emery County	5,400	7	25.9	2:1
Utah County	124,400	29	4.7	1.2:1
Other Counties	873,100	271	6.2	1.5:1
Total State of Utah	1,019,600	328	6.4	1.5:1

*Analysis of the derived 2x4 contingency table yields x^2 (3 d.f.)=64.8, $p < 10^{-7}$.

Results

Table 1 shows the incidence of gastric cancer in Carbon, Emery, and Utah Counties and in the State of Utah from January 1965 to December 1969. Not only did the rates in Carbon and Emery Counties differ greatly from Utah and the other counties, but the difference was statistically highly significant (x^2 with 3 d.f.=64.8, $p<10^{-7}$). The ages in the four series were similar. There were 21 cases of gastric cancer in Carbon County yielding an incidence equivalent to about 25.1 per 100,000 population per year. Emery County had seven cases yielding an annual rate of 25.9 per 100,000 population; Utah County had an annual incidence of 4.7 per 100,000 population; and the State of Utah had 6.4 per 100,000 persons. Table 2 shows the distribution of the cancer cases by year of diagnosis. The incidence of gastric carcinoma in the United States and the states of Connecticut, Iowa, Nevada, and New York and El Paso County, Texas is shown in Table 3, and the age adjusted death rate from cancer of the stomach in various countries of the world are shown in Table 4.

Occupation, Environmental, and Exogenous Factors

Patients with gastric carcinoma who are exposed frequently to coal, smoking, and alcohol are shown in Table 5. In Carbon County 52.2 per cent of patients with stomach cancer were coal miners, in Emery County 28.6 per cent were coal miners, but none in Utah County were miners. Table 6 shows comparison of incidence of gastric cancer in coal miners versus non-coal miners living in coal mining and non-coal mining regions. There were 13 gastric cancer cases in 1,188 coal miners yielding an annual incidence of 220 per 100,000 population. Non-coal miners living in Carbon and Emery Counties had an annual incidence for gastric cancer of 14.4 per 100,000 population. Non-coal miners in Utah County had an annual incidence of 4.7 per 100,000 population; and all other counties had a rate of 6.2 per 100,000. All the homes of patients afflicted by gastric cancer in Carbon and Emery Counties were heated with coal. Furthermore, in some of the homes in these two counties, coal was used for cooking.

TABLE 2
GASTRIC CANCER
NUMBER OF CASES PER YEAR
1965 THROUGH 1969

County or State	1965	1966	1967	1968	1969	Total
Carbon County	9	5	2	4	1	21
Emery County	3	1	1	0	2	7
Utah County	8	6	5	4	6	29
State of Utah	68	75	63	65	57	328

TABLE 3

GASTRIC CANCER
ANNUAL INCIDENCE IN OTHER AREAS

State, County, or Country	Year	Incidence per 100,000 pop.
Connecticut	1965	16.3 (male) 7.8 (female)
El Paso County, Texas	1966	6.6
Iowa	1968	6.7
Nevada	1963	3.3
New York	1960	16.9 (male) 9.4 (female)
U.S.A.	1967	6.7

Mountain Fuel Supply, the local gas company, did not get a franchise to install natural gas in houses in Carbon and Emery Counties until 1966. The Utah County homes were heated with either natural gas or electricity during the last three or more decades. Socioeconomic class distribution determined by occupation and income was similar in the three counties with over 75 per cent of the patients in each county from the middle class.

Nativity, Ethnic, and Hereditary Factors

In Carbon County 39.1 per cent of patients with stomach cancer were born in foreign countries, mostly in Greece and Italy and a few in France and Japan. However, most of the patients from Emery and Utah Counties were born locally of Northern European ancestry and descendants of Mormon immigrants of the middle 19th century. Blood types of patients, family history of gastric cancer, and other cancers are shown in Table 7.

Many patients had one or more gastric mucosa alterations; i.e., atrophic gastritis, chronic gastritis, achlorhydria, hypochlorhydria, gastric polyps, and pernicious anemia. There was no significant difference in the three counties. The differences between the counties by type and location in the stomach were negligible. Adenocarcinoma was the predominant type (87.5 per cent), followed by linitis plastica (8.0 per cent), leiomyosarcoma (1.5 per cent), lymphoma (1.5 per cent), and reticulum cell sarcoma (1.5 per cent).

TABLE 4

GASTRIC CANCER
AGE-ADJUSTED DEATH RATE
PER 100,000 POPULATION
1964 - 1965*

Country	Male	Female
U.S.A.	10.45	5.13
Europe		
England and Wales	23.42	11.46
Germany	37.05	20.69
Finland	39.66	20.38
Norway	26.01	14.63
Sweden	22.04	12.03
Asia		
Japan	68.57	35.31
Philippines	6.18	4.64
Thailand	1.82	0.83
South America		
Chile	58.43	39.02
Mexico	9.67	8.89
Nicaragua	1.31	0.74
South Africa	25.27	13.00

*Adapted from '71 Cancer Facts and Figures, American Cancer Society.

TABLE 5

GASTRIC CANCER
EXPOSURE OF PATIENTS TO
COAL SMOKING, AND ALCOHOL
(in per cent)

County	Coal Mining	Home Heating System		Cigarette Smoking*	Alcohol
		Coal	Natural Gas or Electricity		
Carbon	52.2	100	0	76.2	71.4
Emery	28.6	100	0	14.3	14.3
Utah	0.0	0	100	17.2	13.8

*Smoked one to three packets of cigarettes per day for over 20 years.

Discussion

The incidence of gastric cancer in Carbon and Emery Counties was five to six times that of Utah County and three to four times that of the State of Utah and of the United States. Furthermore, the incidence in coal miners was 15 times that of non-coal miners living in Carbon and Emery Counties and was over 40 times that of non-coal miners living in Utah County and other non-coal mining counties. This is a significantly high incidence of the disease in this coal mining region. Most of the gastric cancer patients in both Carbon and Emery Counties were operated on at the Carbon County Hospital.

TABLE 6

GASTRIC CANCER
INCIDENCE IN COAL MINERS VS. NON-COAL MINERS
1965 THROUGH 1969

County Region	Population	Gastric Cancer Cases	Annual Incidence Rate Per 100,000
Carbon and Emery (Coal Miners)	1,188	13	220.0
Carbon and Emery (Non-Coal Miners)	20,912	15	14.4
Utah County (Non-Coal Miners)	124,400	29	4.7
Other Counties (Non-Coal Miners)	873,100	271	6.2

Histologic examination was performed by the pathologist in the Grand Junction hospital in Colorado and no similar increased incidence of gastric cancer was noted in the Grand Junction area.

Aird et alia,[13] Jennings et alia,[11] Koster et alia,[12] and Buckwalter et alia[14] have shown a high relationship of gastric carcinoma with type A blood group, although some reports in the medical literature[18,19,20] do not show this association. It has been suggested that the gastric mucosa of persons with blood group A is apparently more liable to atrophy and inflammation and therefore, is more likely to become malignant. It is likely that genetic factors influence the sensitivity of individuals to stimuli capable of giving rise to or protection against cancer of the stomach. In our studies the frequency of blood group A was greater in patients suffering from cancer of the stomach in Emery (57.1 per cent) and Utah (51.7 per cent) Counties but not in Carbon County (42.9 per cent), as compared to the general U.S. population (44.6 per cent). If the population blood group distributions are considered comparable, none of these frequencies, singly or combined, differ significantly at any reasonable level of statistical significance from the United States figure. While no firm conclusions can be drawn from these data, they suggest a small increased risk of gastric carcinoma among blood group A patients. Even if the increased risk be real, blood type and hereditary factors do not appear to be responsible for the higher incidence of gastric carcinoma in Carbon and Emery Counties.

The age distribution, diet, and socioeconomic class distribution are similar in all three counties; hence, adjustment of the rates would little alter the results. Carbon County has a rather heterogenous population, but ethnic background does not seem to be the reason for the increased incidence of gastric cancer since Emery and Utah Counties have similar ethnic, religious, and social backgrounds, yet the incidence of gastric cancer in Emery County is five to six times that of Utah County.

TABLE 7

GASTRIC CANCER
PER CENT DISTRIBUTION OF BLOOD GROUP
AND FAMILY HISTORY OF CANCER

County	Blood Group Type				Family History of Cancer	
	A	O	B	AB	Gastric	Other
Carbon	42.9	42.9	9.5	4.7	4.7	9.5
Emery	57.1	42.9	0.0	0.0	28.6	0.0
Utah County	51.7	27.6	13.8	6.9	17.2	20.7
United States Population	44.6	43.5	8.4	3.4		

Carbon and Emery Counties have climate similar to Utah County and the rest of the state with exception of coal mining and extensive use of coal for heating. Soft coal is composed of highly volatile hydrocarbons which are the chief source of atmospheric soot pollution in areas where this fuel is used for heating and cooking purposes. In 1933 Cook and Hewitt[21] synthesized benzopyrene and benzpyrene which are highly carcinogenic hydrocarbons and have been demonstrated to produce tumors experimentally.[22,23] Coal soot has a high benzpyrene content.[24] Also, coal smoke is composed of small and large particles. When air carrying these particles is inhaled, the large particles are trapped in the upper respiratory tract,[25,26] mobilized toward the pharynx, and either expectorated or swallowed. If particles are swallowed and reach the stomach, gastric carcinoma could be induced by benzpyrene and its related carcinogens.[3] It appears that the high incidence of gastric cancer in Carbon and Emery Counties could be related to frequent exposure to coal carrying carcinogenic hydrocarbons, in addition to the other unknown etiologic factors.

Summary

Carbon and Emery Counties are soft coal mining regions. The incidence of gastric cancer in these two counties is five to six times that of adjacent Utah County, which has no coal industry, and three to four times that of the State of Utah and of the United States.

A detailed study of patients with gastric cancer in the coal mining region revealed that 52.2 per cent of patients in Carbon County and 28.6 per cent of patients in Emery County were coal miners. The gastric cancer incidence in coal miners was 15 times that in non-coal miners in Carbon and Emery Counties, but over 40 times that in non-coal miners in Utah and other non-coal mining counties. All the homes of patients afflicted by gastric cancer in both Carbon and Emery Counties were heated with coal, and in some of the homes coal was used for cooking. In Carbon County 39.1 per cent of gastric cancer patients were born in foreign countries.

In Utah County none of the gastric cancer patients were coal miners. Furthermore, the homes were heated with either natural gas or electricity. The age distribution, diet, socioeconomic class distribution, and climate were similar in all three counties. Carbon County has a heterogenous population but Emery and Utah Counties have similar ethnic, religious, and social backgrounds.

It is concluded that there is a statistically significant high incidence of gastric cancer in Carbon and Emery Counties. Coal mining and the extensive use of soft coal in this area might be an etiologic factor. •

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Student health program for migrant farmworkers and rural poor

**S. E. Barnett, MD, J. E. Kralewski, PhD,
H. P. Chase, MD, and S. Hardwick, MA, Denver, Colorado***

A description of a program of the Departments of Pediatrics and Peventiv Departments of Pediatrics and Preventive Medicine, Division of Health Administration at the University of Colorado Medical Center in Denver is presented.

EACH YEAR BETWEEN 50,000 and 75,000 migrant and seasonal farmworkers move into Colorado, 25,000 from the Rio Grande Valley in Texas. Along with the rural poor who live permanently in Colorado, the migrant farmworkers serve the Colorado agricultural industry between May and November. Most of these families are of Mexican-American descent, although at least 20 per cent are American Indian. In Southern Colorado at least 50 per cent of the population is of Mexican-American background.

Since they live in underserved rural areas, the migrant and rural population develops an unfortunately deficient state of living and health conditions. Few realize that the life expectancy of a migrant farmworker is only 49 years, while the national average has risen to 70 years. The average income for a family of four is less than $1,800 a year, while the national average is $9,800.[1] The average educational level is fifth grade.

In regard to health status, one out of every three expectant mothers does not receive prenatal care. At least half of the children have a nutrition or health problem, such as deficiencies in vitamins A, C, and D, a high incidence of streptococcal infections, and 50 per cent are without DPT or polio immunizations.[2,3] Despite these conditions, regulations prohibit these people from receiving welfare. Furthermore, their strong family bonds prevent their seeking benefits from such programs as Aid to Dependent Children (ADC) or federal medical assistance.

*Dr. Barnett is Program Director, Dr. Kralewski is Director of the Division of Health Administration, Dr. Chase is Associate Professor of Pediatrics, and Susan Hardwick is Program Assistant, University of Colorado Medical Center, Denver.

The UCMC Program

Recognizing these many problems, the Departments of Pediatrics and Preventive Medicine (Health Administration) set out to develop a program which would increase the health services available to this population group and which would help acquaint health students with the population.

As the representatives from the UCMC soon discovered, one of the major problems encountered in attempting to bring migrants and the rural poor into the mainstream of medical care is the shortage of physician manpower in rural areas. Medical manpower in the rural areas is already overworked with few opportunities for time off from their busy schedules for continuing education programs or vacation. Thus, while many physicians are sympathetic with the development of governmental programs and other social movements aimed at bringing underserved and neglected groups into the existing system, they, at the same time, realistically must display caution in order to preserve the quality and effectiveness of their present practices.

With this in mind, the Student Health Program for Migrant Farmworkers and Rural Poor was developed in 1970 to bring

these underserved groups into the existing rural health care system by helping physicians meet the increased work load through the use of health students. The Program was funded by Colorado-Wyoming Regional Medical Program, providing a modest stipend for the students and funds for transportation and the purchase of supplies. The success of the Student Health Program (SHP) in developing and generating health services for the migrant farmworker family in rural Colorado results from its multi-organizational and inter-disciplinary base. The Program works with organizations which have allowed us to bridge the gap of the transcultural and socioeconomic barriers to improving the health status of these families. Examples of these organizations include the Colorado Migrant Council (CMC), the Colorado State Health Department, the University of Colorado Medical Center, and, perhaps the most important, the local physicians and health providers of Colorado's rural communities.

The major emphasis of the Program takes place during the summer months when the bulk of the migrant and seasonal workers are in the fields of rural Colorado. During this time, 30 students are deployed to nine areas around the state including Greeley/Fort Lupton, Sterling, Burlington, Lamar/Granada, Rocky Ford/La Junta, Center, Alamosa, Delta, and, most recently, Pueblo/Avondale. The students represent the medical, dental, nursing, child health associate, and pharmacy professions and are divided into teams in which each profession is represented. After completing an initial orientation session at the UCMC, the students then go to the rural areas in which they will live and work for at least ten weeks. They are assigned to local preceptors who are part of that area's established medical community.

The students utilize the local migrant consumer clinics, physician's office and, sometimes, the local hospital facilities, although much of their activity takes place out of the CMC, Head Start, and Day Care Centers. The traditional home visit has also become an important tool with which the students have been able to reach the migrant population. Migrants are often situated in labor camps or in small, usually two-room dwelling units located on the different farms. The average number of people per dwelling unit is nine; consequently, if three home visits are made in one evening, it is essentially the equivalent to holding a small clinic. These direct encounters with the migrant family in their home settings results in a thorough understanding of the health problems the families face.

In this way, the students act as a bridge between the migrant and the local health care providers. The students perform in this capacity as an extension of the physician and his office, treating minor illnesses in the field and transporting more serious cases to the physician's office. Once in the office, the student functions as the physician assistant, thereby providing the physician with the additional resources needed to handle the expanded work load.

Essential to the Program is the good will and cooperation of the local physicians, dentists, Public Health Departments, and migrant nurses of the Colorado State Health Department. Without their willingness to precept the students, the Program could not succeed.

Results and Conclusions

While the Program has had some difficulties in communication, it nonetheless has met with a considerable degree of success and has demonstrated the following promising conclusions:

(1) Rural physicians in most cases are willing to expand their services to underserved groups if they are provided some method of expanding their capabilities without risking financial or professional disaster. To illustrate this point, the number of local health providers involved in the Student Health Program increased from eight doctors in the summer of 1971 to 31 doctors, dentists, and pharmacists in 1972.

(2) Students of the health professions can provide a valuable link between the physician's office and underserved groups in an out-reach capacity and can provide a valuable screening role for the physician as a

physician's assistant in his office. In the summer of 1972 the 27 students of the SHP had a total of 7,707 patient encounters. Many of these were migrants seen during home visits or Colorado Migrant Council Head Start and Day Care Center screening exams. From these encounters many people were referred either to the local physician, to the local hospital, or to Colorado General Hospital in Denver.

(3) The development of teams and students with representation from various disciplines provides the students with greater insights into the potential contributions of the various professions to health care and provides an opportunity to become comfortable working with each other while they are still in the formative years of their careers. As one student said, "The team approach to the program is the most vital and essential aspect of a successful area. For, as in the Burlington area, we all coordinated our efforts together through the migrant clinic in staffing the clinic, doing out-reach, followup, health planning, etc., to make each other more efficient in his own field of health provision and thus be able to provide much more extensive health care to the people than could be done on an individual basis by each member of the team. Each person has different assets that can interact and develop into a more complete approach."

(4) The exposure of students to rural health care problems may cause some to become interested in rural health care and pursue that avenue after graduating. This is especially true of medical students who will be able to see how the team concept will allow them to practice in the rural area without foregoing the time amenities of an urban area. As a whole the students agree with this conclusion. Each was asked as he returned to his studies for the fall if he felt his summer experiences influenced him to want to work in a rural area or not. Twenty-one students showed a genuine interest in a rural involvement. Only six felt the summer had not influenced their decisions about future careers one way or another.

(5) Students act in an educative role to the consumer and help interface minority groups with the health professions. A nursing student says, "One of the most important areas in delivering health care, I believe, is health education. Education must precede any hopes we have for changes in health practices. I taught several classes in the migrant school and also tried to do health teaching whenever possible in the clinics and on home visits. It was extremely important to adapt the material to what the individual could understand and to what would be feasible for them to carry out in their home situation." •

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Ambient air fluorides in Salt Lake County

William L. Davis, MPH,* Salt Lake City, Utah

FLUORIDE IS AN UBIQUITOUS substance. Detectable traces can be found almost everywhere. It exists in the ambient air of both rural and urban areas throughout the country.

Industrial sources using fluorides, depending on the processes used, may release into the atmosphere elemental fluorine (F_2), soluble gaseous fluorides (HF), and soluble or insoluble fluoride dusts. Principal fluorine-bearing minerals used in industrial processes are fluorite or fluorspar (CaF_2), cryolite (Na_2AlF_6), apatite ($3Ca_3(PO_4)2 \cdot CaF_2$), and sedimentary rock phosphate. Fluorspar is used as a flux in the smelting of certain ores and in the ceramic industry. Cryolite is used in the separation of aluminum. Phosphate rock is used in the production of phosphate fertilizers, phosphates, and phosphorous.[1]

The concentrations or levels of fluorides in the ambient air will depend on the amount of fluoride emitted, the distance from the source of contamination at which the measurements take place, meteorological conditions, and topography of the region. The atmosphere of some cities in the United States "normally" contains less than 0.2 $\mu gF/m^3$. Other cities have been known to have concentrations as high as 1.9 $\mu gF/m^3$.[2]

Generally, there have been no effects on the health of man from the inhalation of airborne organic fluorides within the place of residence. Dusts have not been released into communities adjacent to industrial operations in amounts sufficient to influence the intake of fluoride by man. The available evidence indicates that with few exceptions the health of persons in the vicinity of factories emitting fluoride fumes or dust has not been adversely influenced.[2] Any effects induced by airborne fluorides have concerned the few instances reported where fluoride was present in the atmosphere within the area where men work or where the fluorides became a contaminant which was ingested with food or water.[3] Because of these two factors, fluoride contamination has become a consideration of occupational health, livestock ingestion, and vegetation damage rather than a concern of inhalation by man of ambient air concentrations.

Standards related to ambient air concentrations of fluoride are scarce. Federal agencies have not established an ambient air standard nor do they require it of the various states as part of their air pollution control programs. Wyoming has adopted a fluoride regulation and standard. Briefly, it states that fluorides measured as HF in the ambient air shall not exceed 0.80 ug per cubic meter or 1.0 ppb as a 24-hour average.[4] Study of this standard reveals that it was instituted primarily for the protection of livestock and the benefit to man is a secondary result. Montana has adopted a regulation similar to that of Wyoming. Because of existing deposits of phosphate and industrial sources related to its manufacture, Florida also has a regulation related to fluorides.

The fluoride Threshold Limit Value in industrial atmospheres is 2.5 mg/m^3. Evidence indicates that a man working rigorously eight hours a day in an environment below this level would be unlikely to experience detectable osteosclerotic changes.[5]

*Mr. Davis is with the Air Quality Control Section of the Salt Lake City-County Health Department.

It has been known that some types of vegetation, of which the gladiolus plant and the Chinese apricot tree are two, are highly susceptable to the effects of fluoride. Surveys made to determine markings on these and other plants serve as good indicators of the presence of ambient air fluoride. In all likelihood a standard to protect vegetation will be set somewhere below 10 ppb, and an air quality standard less than this would make the intake by man difficult to detect and would be far below the air concentrations that could possibly have an effect on human health.[2]

Sources of Fluoride Emissions

Several industrial sources which emit fluoride over the past years within or neighboring Salt Lake County are of interest. In most instances, each has recognized its problem and has taken steps to control or correct the release of fluoride emissions into the atmosphere.

The U. S. Geneva Steel Plant at Orem, Utah is the best known fluoride emitter in the region because of court cases and payments to local farmers for crop and animal damage related to fluoride emission in the 1950's. Since that time Geneva Steel has installed electrostatic precipitators and has changed to a low fluoride ore from Wyoming with a consequent substantial reduction in the amount of fluoride emitted in the 1970's.

Kennecott Copper Company is a recognized source of fluoride because of the large quantity of ore processed but not in the total per cent of its emissions. It has initiated a program which will ultimately bring its Utah operations into compliance with state visible emission regulations. This will result in a significant reduction of total emissions and consequently its fluoride emissions.

Fertilizer plants producing phosphate fertilizers are a well known source of fluoride emissions. Stauffer Chemical Company, located near Garfield, produces phosphate fertilizers and has been concerned about its fluoride emissions as well as the total amount of particulates released. It is improving its control program by improving the scrubber design and installing a series of new baghouse dust collectors, two of which have been installed and the third to be completed and operating in the fall of 1972.

Interstate Brick Company, through the use of fluoride-containing clay, has been a principal source of fluoride emissions. Much of the fluoride vegetation damage that occurred in the area surrounding its property was attributed to its operation. It installed two scrubbers approximately five years ago estimated as having at least 95 per cent cleaning efficiency. Surveys of plant damage in the area indicate a substantial decrease in the amount of fluoride now being emitted. Its existing operations will soon be completely moved to its new plant in West Jordan where new scrubbing systems have been installed with even greater efficiencies expected.

Other sources of fluoride which should be acknowledged are the oil refineries located north of Salt Lake City. Fluoride (as HF) can be emitted from the refining processes that use hydrogen fluoride as a catalyst in producing gasoline. One oil company, for example, uses an HF process which brings about a reaction to increase the octane in the gasoline produced.

Levels of Fluoride in Ambient Air

Monitoring data relating the fluoride in the atmosphere of Salt Lake County are not too abundant. Neither the state nor any local governmental health agency in the state has monitored for the pollutant. This lack of data, coupled with the lack of established ambient air fluoride standards, tends to express an admission that the present emissions of fluorides and their inhalation by Salt Lake County residents is not recognized as a serious problem.

Federal measurements have been made in Salt Lake City and Ogden on a limited basis through the National Air Surveillance Network. Of the 49 samples taken in Salt Lake during the years of 1966 and 1967, the maximum concentration was found to be 0.16 $\mu gF/m^3$. Only 14 of the 49 samples taken were above a detectable quantity. The maximum concentration of 24 samples taken in Ogden was 0.05 $\mu gF/m^3$.[6]

Measurements taken by industrial sources have been related to crop accumulation and

damage. However, some ambient air information has been made available. One industrial source has maintained a number of sampling stations for several years. It claims ambient levels of fluoride surrounding its operations are now so low that the sampling devices have to be exposed for longer periods of time in order to show a reaction with airborne fluoride. Its measurements are stated to have averaged 0.09 $\mu gF/m^3$ in 1971 and are very close to what it considers background levels.

One other industrial plant has completed some monitoring of ambient fluoride levels on its property and in several other locations throughout the county. The data it has collected suggests a 17 ppb concentration in the atmosphere at its property line. It feels this will decrease with the completed installation of a pollution control system. It also has conducted livestock surveys which indicate no harmful effects from its emissions. The completeness of these surveys remains to be questioned.

One oil company, although it has not actually monitored to obtain ambient air levels of contamination on or off its property, did conduct a computer survey of its operations which gave an 0.8 ppb fluoride level on its property.

Other studies have been conducted which indicate the levels of ambient air fluoride and their possible effects. Call et alia[7] reported studies of autopsy material from residents along the Wasatch Front where fluoride concentrations were felt to be elevated primarily because of industrial activity. The study was conducted from September 1955 through August 1960 and was intended to provide information related to the possible changes in human tissues associated with fluoride exposure. Values for fluoride in air samples collected at Provo ranged from 0.10 to 0.80 $\mu g/m^3$. Similar measurements are stated to have been obtained at the Salt Lake City airport. A lower average value of 0.06 $\mu gF/m^3$ was obtained at Logan, Utah during the same period. Studies were conducted on bodies of 127 patients. Of the 442 bones and cartilages studied, none showed any of the pathological changes which have been attributed to fluorosis, and bone fluoride levels were found to be within the general range reported for normal subjects in other studies. No evidence was obtained of abnormally high fluoride concentrations in any of the soft tissues examined. The study concluded that the data obtained indicates that the levels of fluorides to which Utah residents in the area studied had been exposed were not responsible for gross or histologic changes in soft tissues or bones.

Much research has been conducted along the Wasatch Front related to the effects of fluoride on livestock. Grazing animals are much more exposed than man to high concentrations of fluoride because of residues that can accumulate on forage and grain and therefore ingested. As a result, the effects of fluoride are likely to be seen in livestock before it is noticeable in man. Grain, in contrast to forage, contains little fluoride. Some zones in the United States outside of industrial concentration show 2-75 ppm fluoride, whereas forage grown in industrial zones show 500-1,000 ppm contamination.[1] Other influential factors are the soil content of fluorine, the ability of the plant to obtain it from the soil, and the fluoride content of water.

Many factors influence the biologic responses of livestock to ingested fluorides. These include (1) concentration of fluoride in the substances ingested, (2) duration of ingestion, (3) chemical combination and thus, solubility of fluoride in the ingesta, (4) species of the animal affected, (5) age of the animal at the time of ingestion, (6) qualitative and quantitative nutritional adequacy of the ration, (7) stress factors, and (8) individual biologic responses.[8] Taking into account the factors that would influence livestock, the occurrence of fluorosis in animals or the ingestion of fluoride-contaminated vegetation is not considered a serious problem in the Salt Lake region.[9]

The effects of atmospheric fluoride on plants are apparent. However, a strong correlation between the occurrence of plant damage and the level of fluoride cannot be accurately defined since too many other variables which influence the plant play a part.

Generally speaking, plant damage is not likely to occur if the fluoride does not exceed 0.10 $\mu g/m^3$. Many plant species can tolerate extremely high fluoride levels without becoming marked. Fluoride analysis of a number of species reveals levels close to 700 ppm with little to no foliar markings evident.[10]

Plant damage surveys in which the Chinese apricot tree was observed have been conducted over the past years by members of the Utah State University, the University of Utah, and private industry. Injury resulting from ambient concentrations of fluoride has been widespread along the Wasatch Front, and areas of high intensity in relation to plant damage have been found in the Bountiful-Woods Cross area, the Magna-Tooele area, and in West Orem. The most recent survey completed reported readings of fluoride damage that were less than the previous year; i.e., in some areas where it has been known that large amounts of damage occur, markings were not as evident to as great an extent.[11]

Conclusion

Although some urban areas in the United States are known to have concentrations of ambient air fluorides as high as 1.9 $\mu g/m^3$, reports indicate that "normal" urban areas contain less than 0.2 $\mu g/m^3$. Much of the data obtained in Salt Lake County and the surrounding region indicate that the Salt Lake urban area experiences ambient air levels of fluoride which do not exceed this "normal" and that, in general, residents in this area are not subjected to the inhalation of abnormally high concentrations of atmospheric fluorides.

Many of the industrial sources which have been known fluoride emitters have or are in the process of controlling their emissions to the degree that substantial reductions have been made, and a trend of further reductions is expected to continue through the next few years.

Information from investigations conducted in the Salt Lake Valley point out that livestock are not experiencing high concentrations of fluoride ingestion, and studies conducted of residents along the Wasatch Front indicate they do not experience abnormal or histologic effects as a result of fluoride inhalation. Also, data collected over the past few years tend to show that the effect fluorides have on plant damage is decreasing in various areas of the region. •

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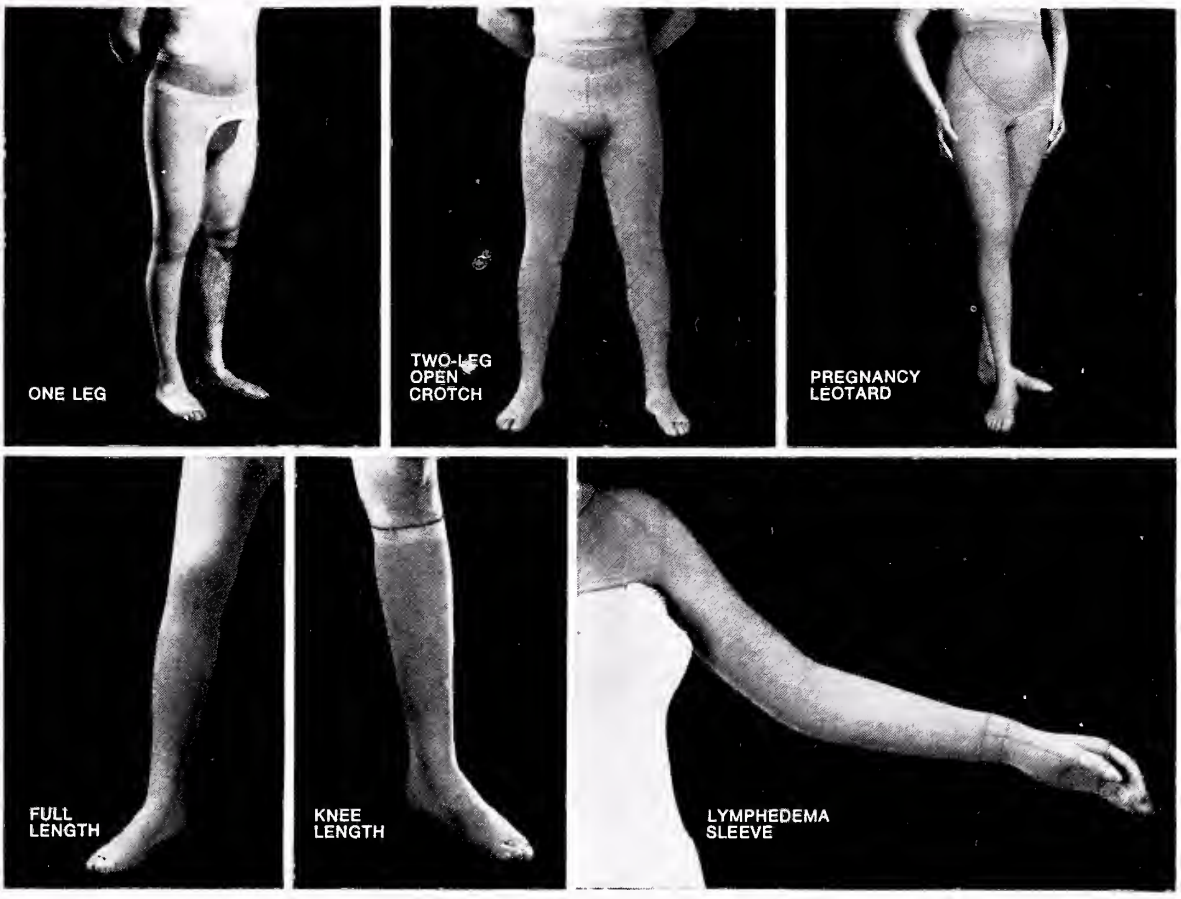

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COLORADO

Dr. Conger Named Trustee

John J. Conger, PhD, has been named to the Board of Trustees of Mount Airy Foundation. Dr. Conger is on the faculty of the University of Colorado Medical School, where he has served as vice-president of Medical Affairs as well as dean and professor of Clinical Pathology. Dr. Conger has been active on numerous national and state committees dealing with mental health and as a consultant to many national health organizations.

Area Doctors Appointed to College

Three Colorado physicians have recently been named Fellows of the American College of Chest Physicians. They are Drs. Philip R. Corsello and Albert J. Kukral, both of Denver, and Dr. J. Rowland Reid of Colorado Springs. This honor is bestowed upon physicians who have attained the highest professional standards in the cardiopulmonary field.

MONTANA

Three Members Now FACS

Dr. Vincent A. Amicucci of Helena and Drs. Norman A. Nickman and John E. O'Connor of Missoula were recently chosen as Fellows of the American College of Surgeons.

Noted Professor on Denver Sabbatical

For the next six months Professor Gunnar Strom from the University of Uppsala in Sweden will serve as visiting clinical physiologist at General Rose Memorial Hospital and as professor of physiology at the University of Colorado Medical School. Dr. Strom, a world authority in clinical physiology as well as an authority on socialized medicine, health delivery and education in Scandanavia, is available for interviews. Call the Public Relations Department of Rose Hospital, 321-7425, for appointments.

New Codes for Specialty Designation

We have received the current list of designated medical specialty codes and recognized medical specialties which are accepted for identification n the American Medical Association master file of physicians.

Please check your listing in the 1972 DIRECTORY OF PHYSICIANS published by the ROCKY MOUNTAIN MEDICAL JOURNAL, and let us know if one of the new specialty codes would be more applicable for your practice designation. One code, and **one only,** *is permitted for each individual listing.*

LIST OF DESIGNATED SPECIALTY CODES

(Circle one. If limited, indicate by *)

AM	Aerospace Medicine	**NEP**	Nephrology	**PH**	Public Health
A	Allergy	**N**	Neurology	**PUD**	Pulmonary Diseases
AN	Anesthesiology	**CHN**	Neurology, Child	**R**	Radiology
BE	Broncho-Esophagology	**NM**	Nuclear Medicine	**DR**	Radiology, Diagnostic
CD	Cardiovascular Diseases	**NTR**	Nutrition	**PDR**	Radiology, Pediatric
D	Dermatology	**OBS**	Obstetrics	**TR**	Radiology, Therapeutic
DIA	Diabetes	**OBG**	Obstetrics and Gynecology	**RHU**	Rheumatology
END	Endocrinology	**OM**	Occupational Medicine	**RHI**	Rhinology
FP	Family Practice	**OPH**	Ophthalmology	**ABS**	Surgery, Abdominal
GE	Gastroenterology	**OT**	Otology	**CDS**	Surgery, Cardiovascular
GP	General Practice	**OTO**	Otorhinolaryngology	**CRS**	Surgery, Colon and Rectal
GPM	General Preventive Medicine	**PTH**	Pathology	**GS**	Surgery, General
GER	Geriatrics	**CLP**	Pathology, Clinical	**HS**	Surgery, Hand
GYN	Gynecology	**FOP**	Pathology, Forensic	**HNS**	Surgery, Head and Neck
HEM	Hematology	**PD**	Pediatrics	**NS**	Surgery, Neurological
HYP	Hypnosis	**PDA**	Pedriatics, Allergy	**ORS**	Surgery, Orthopedic
ID	Infectious Diseases	**PDC**	Pediatrics, Cardiology	**PDS**	Surgery, Pediatric
IM	Internal Medicine	**PM**	Physical Medicine and Rehabilitation	**PS**	Surgery, Plastic
LAR	Laryngology	**P**	Psychiatry	**TS**	Surgery, Thoracic
LM	Legal Medicine	**CHP**	Psychiatry, Child	**TRS**	Surgery, Traumatic
ND	Neoplastic Diseases	**PYA**	Psychoanalysis	**U**	Surgery, Urological
		PYM	Physchomatic Medicine		

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ALL CHANGES MUST BE IN BY DECEMBER 31, 1972.

SOCIETY OFFICERS

Colorado Medical Society

OFFICERS—1972-73—Terms of Officers and Committeemen expire at the Annual Session of the year indicated. Where no year is indicated the term is for one year only and expires at the 1973 Annual Session.

President: William A. H. Rettberg, Denver.

President-elect: Kenneth A. Kahn, Boulder.

Vice President: Richard L. Davis, La Junta.

Treasurer: Dwight C. Dawson, Colorado Springs.

Constitutional Secretary: Stanley J. Sontag, Lakewood.

Delegates to the A.M.A.: Gatewood C. Milligan, Englewood, Dec. 31, 1973; Robert E. McCurdy, Denver, Dec. 31, 1973; Ray G. Witham, Craig, Dec. 31, 1974.

Alternate Delegates to the A.M.A.: R. Neil Chisholm, Denver, Dec. 31, 1973; William Y. Takahashi, Boulder, Dec. 31, 1973; John M. Wood, Englewood, Dec. 31, 1974.

Speaker, House of Delegates: Joseph S. Pollard, Jr., Colorado Springs.

Vice Speaker, House of Delegates: Joseph L. Kovarik, Denver.

Foundation Advocate: Charles B. Kingry, Denver.

Scientific Editor for Colorado and Chairman of the Editorial Board, Rocky Mountain Medical Journal: Carl H. McLauthlin, Denver.

Scientific Editor Emeritus, Rocky Mountain Medical Journal: Douglas W. Macomber, Denver.

Executive Director: Mr. Donald G. Derry, 1809 E. 18th Ave., Denver. Telephone (303) 399-1222.

Montana Medical Association

OFFICERS—1972-73—Terms of Officers and Committeemen expire at the Annual Meeting in the year indicated. Where no year is indicated the term is for one year only and expires at the 1973 Annual Meeting.

President: Hollis K. Lefever, Lewistown.

President-elect: John R. Burgess, Jr., Helena.

Vice President: John R. Halseth, Great Falls.

Secretary-Treasurer: Robert P. Yost, Missoula.

Assistant Secretary-Treasurer: William E. Hadcock, Conrad.

Delegate to the A.M.A.: Herbert T. Caraway, Billings.

Alternate Delegate to the A.M.A.: Mark B. Listerud, Wolf Point.

Executive Committee: Hollis K. Lefever, Lewistown; John R. Burgess, Jr., Helena; John R. Halseth, Great Falls; Robert P. Yost, Missoula; William E. Hadcock, Conrad; Herbert T. Caraway, Billings; Mark B. Listerud, Wolf Point; Richard L. Peterson, Hamilton; John S. Anderson, Helena.

Scientific Editor for Montana, Rocky Mountain Medical Journal: Gerald A. Diettert, Missoula.

Associate Editor, Rocky Mountain Medical Journal: Mr. L. Russell Hegland, Billings.

Executive Secretary: Mr. L. Russell Hegland, 1236 North 28th Street, P.O. Box 1692, Billings 59103. Telephone (406) 252-6673.

Nevada State Medical Association

OFFICERS—1971-72—Terms of Officers and Committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at th 1972 Annual Session.

President: William D. O'Gorman, Las Vegas.

President-elect: John P. Sande, Reno.

Secretary-Treasurer: John W. Callister, Reno.

Immediate Past President: V. E. Elliott, Fallon.

Delegate to A.M.A.: Leslie A. Moren, Elko.

Alternate Delegate to A.M.A.: Kenneth E. Turner, Las Vegas.

Scientific Editor for Nevada, Rocky Mountain Medical Journal: Harry J. McKinnon, Las Vegas.

Assistant Scientific Editor for Nevada, Rocky Mountain Medical Journal: Wesley W. Hall, Reno.

Associate Editor, Rocky Mountain Medical Journal: Mr. Nelson B. Neff, Reno.

Executive Director: Mr. Nelson B. Neff, 3660 Baker Lane, Reno 89502. Telephone (702) 323-6788.

New Mexico Medical Society

OFFICERS—1972-73—Terms of Officers and Committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at the 1973 Annual Session.

President: Don R. Clark, Roswell.

President-Elect: Armin T. Keil, Raton.

Vice President: U. G. Hodgin, Albuquerque.

Secretary-Treasurer: Ronald V. Dorn, Albuquerque.

Immediate Past President: Vaun T. Floyd, Albuquerque.

Speaker, House of Delegates: W. J. Hossley, Deming.

Vice Speaker, House of Delegates: Rex G. Quigley, Hobbs.

Delegate to A.M.A.: Allan L. Haynes, Clovis.

Alternate Delegate to A.M.A.: Emmit M. Jennings, Roswell.

Councilors for Three Years: Samuel E. Neff, Clovis, District IV; Walter J. Hopkins, Lovington, District V; Jack L. Coats, Farmington, District VII.

Councilors for Two Years: Adrian H. Bodelson, Santa Fe, District II; John J. Smoker, Raton, District I.

Councilors for One Year: William C. Gorman, Albuquerque, District III; John M. McGuire, Alamogordo, District VI.

Scientific Editor for New Mexico, Rocky Mountain Medical Journal: Marcus J. Smith, Santa Fe.

Assistant Scientific Editor for New Mexico, Rocky Mountain Medical Journal: William S. Curran, Albuquerque.

Associate Editor for New Mexico, Rocky Mountain Medical Journal: Mr. Ralph R. Marshall, Albuquerque.

Executive Director: Mr. Ralph R. Marshall, 3010 Monte Vista Boulevard NE, Albuquerque. Telephone (505) 265-8494.

Assistant Executive Director: Mr. Thomas A. Bodnar, Albuquerque.

Utah State Medical Association

OFFICERS—1972-73—Terms of Officers and Committeemen expire at the Annual Session in the year indicated. Where no year is indicated the term is for one year only and expires at the 1973 Annual Session.

President: William R. Christensen, Granger.

President-elect: J. Louis Schricker, Jr., Salt Lake City.

Past President: Merrill C. Daines, Logan.

Honorary President: Stanley M. Clark, Provo.

Secretary: Howard G. McQuarrie, Salt Lake City.

Treasurer: Scott M. Smith, Salt Lake City.

Delegate to A.M.A.: Drew M. Petersen, Ogden.

Alternate Delegate to A.M.A.: Alan R. Nelson, Salt Lake City.

Speaker, House of Delegates: William Knox Fitzpatrick, Salt Lake City.

Vice Speaker, House of Delegates: John W. Emmett, Logan.

Scientific Editor for Utah, Rocky Mountain Medical Journal: Alan E. Lindsay, Salt Lake City.

Associate Editor, Rocky Mountain Medical Journal: Mr. Hoyt W. Brewster, Salt Lake City.

Executive Director: Mr. Hoyt W. Brewster, 42 South Fifth East Street, Salt Lake City 84102. Telephone (801) 355-7477.

Wyoming State Medical Society

OFFICERS—1972—Terms of Officers and Committeemen expire December 31, 1972. At the 1971 Annual Session, terms of office (with the exception of Delegate and Alternate Delegate to AMA) were changed to expire at the end of the calendar year rather than at the Annual Session.

President: William G. Erickson, Lander.

President-elect: Donald F. Mahnke, Casper.

Vice President: Paul R. Yedinak, Rock Springs.

Secretary: Donald B. Hunton, Cheyenne.

Treasurer: Patrick D. Nolan, Buffalo.

Delegate to A.M.A.: Harlan B. Anderson, Casper.

Alternate Delegate to A.M.A.: Thomas A. Nicholas, Buffalo.

Speaker of the House: Goode R. Cheatham, Jr., Casper.

Vice Speaker of the House: Norman R. Black, Cheyenne.

Immediate Past President: Fenworth M. Downing, Sheridan.

Scientific Editor for Wyoming, Rocky Mountain Medical Journal: Francis A. Barrett, Cheyenne.

Associate Editor for Wyoming, Rocky Mountain Medical Journal: Mr. Robert Smith, Cheyenne.

Executive Secretary: Mr. Robert Smith, P.O. Box 1367, Cheyenne, Wyoming 82001. Telephone (307) 632-5525.

OBITUARIES

Colorado

Bernard E. "Bob" Grossman, MD, died Saturday, October 28 in Aspen, Colorado from a heart attack. He was 64. Born in Peoria, Illinois, August 30, 1908, Doctor Grossman received his preparatory education in that city, then attended college at Washington University (Saint Louis), Denver University, and the University of Colorado. He received his medical degree from the University of Colorado in 1934. He interned and served a medical residency at Colorado General Hospital.

Doctor Grossman was a Denver police surgeon for several years but in later years devoted most of his time to coloproctology. He was a member of the medical staff of both Rose Memorial and Mercy Hospitals. He held memberships in the Denver and Colorado Medical Societies, the American Medical Association, and the American Proctological Society. He was a Fellow of the American College of Surgeons.

In February 1939 Doctor Grossman was married to Wilma Mary Finnell who survives him. Surviving also are a daughter and two sons.

Willard Arthur Smith, MD, died January 17, 1972 of pneumonia following a stroke at the age of 78. He was born in Saginaw, Michigan in 1893 and educated in the public schools in that area. He attended the University of Colorado from which he received his MD degree in 1919. He practiced in Colorado Springs all his professional life, limiting his work to otolaryngology.

Doctor Smith was a member of the El Paso County and Colorado Medical Societies, the American Medical Association, the American Otolaryngological Society, and the Phi Rho Medical Fraternity.

In May 1969 Doctor Smith was honored by the alumni association of the University of Colorado with the presentation of the 50-year graduate award. He received the 50-year membership award from the Colorado Medical Society at its annual meeting in Colorado Springs in September 1971.

Doctor Smith is survived by his widow Helen of Colorado Springs, a sister, and a half brother.

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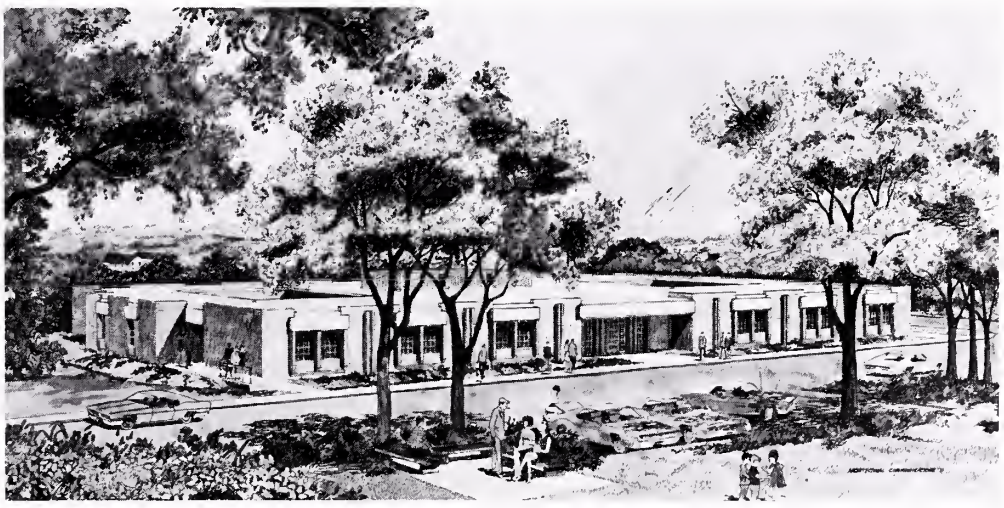

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Utah

H. Leo Marshall, MD, former acting dean of the University of Utah College of Medicine, and the organizer and director of the first University of Utah Health Service, died October 11, 1972, in Napa, California. He was 88. Born September 10, 1884, in Tooele, Utah, Doctor Marshall married Lucile Rogers in 1918. She preceded him in death.

Doctor Marshall received an AB degree in 1908 from the University of Utah and in 1914 was awarded his MD degree from Columbia University College of Physicians and Surgeons. He interned at U.S. Naval hospitals and in 1930 received an MS degree in Public Health.

For 22 years, Doctor Marshall served as professor of preventive medicine and public health, and from 1946 to 1950 he served as the acting dean of the University Medical School. Doctor Marshall's long career in medicine was culminated in 1964, just before his 80th birthday, when, after nine years of volunteer work, the University of Utah medical complex became a reality. After his retirement in 1950, Doctor Marshall served for several years as the director of public health and medical services for the United States Trust Territory of the Pacific Islands, headquartered in Honolulu.

Doctor Marshall had served as president of the American College Health Association, the Utah State Public Health Association, and the Utah Merit System Council. Active in medical and civic organizations, he held membership in the board of trustees of the Utah State Hospital Association, the Salt Lake City Planning and Zoning Commission, the advisory committee to the United States Surgeon General, the American Tuberculosis Association, the American Public Health Association, and the Salt Lake County, Utah State, and American Medical Associations. He was also a member of Phi Kappa Phi, Alpha Omega Alpha, Timpanogos Club, Aztec Club, and was listed in "Who's Who in American Medicine". Doctor Marshall was the recipient of an honorary doctor of law degree from the University of Utah in 1960.

Doctor Marshall is survived by two daughters, twelve grandchildren, and eight great-grandchildren.

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CONTRAINDICATIONS: Hypersensitivity to any of the tetracyclines.
WARNINGS: Tetracycline usage during tooth development (last half of pregnancy to eight years) may cause permanent tooth discoloration (yellow-gray-brown), which is more common during long-term use but has occurred after repeated short-term courses. Enamel hypoplasia has also been reported. **Tetracyclines should not be used in this age group unless other drugs are not likely to be effective or are contraindicated.**
Usage in pregnancy. (See above **WARNINGS** about use during tooth development.)
Animal studies indicate that tetracyclines cross the placenta and can be toxic to the developing fetus (often related to retardation of skeletal development). Embryotoxicity has also been noted in animals treated early in pregnancy.
Usage in newborns, infants, and children. (See above **WARNINGS** about use during tooth development.)
All tetracyclines form a stable calcium complex in any bone-forming tissue. A decrease in fibula growth rate observed in prematures given oral tetracycline 25 mg/kg every 6 hours was reversible when drug was discontinued.
Tetracyclines are present in milk of lactating women taking tetracyclines.
To avoid excess systemic accumulation and liver toxicity in patients with impaired renal function, reduce usual total dosage and, if therapy is prolonged, consider serum level determinations of drug.The antianabolic action of tetracyclines may increase BUN. While not a problem in normal renal function, in patients with significantly impaired function, higher tetracycline serum levels may lead to azotemia, hyperphosphatemia, and acidosis.
Photosensitivity manifested by exaggerated sunburn reaction has occurred with tetracyclines. Patients apt to be exposed to direct sunlight or ultraviolet light should be so advised, and treatment should be discontinued at first evidence of skin erythema.
PRECAUTIONS: If superinfection occurs due to overgrowth of nonsusceptible organisms, including fungi, discontinue antibiotic and start appropriate therapy.
In venereal diseases, when coexistent syphilis is suspected, perform darkfield examination before therapy, and serologically test for syphilis monthly for at least four months.
Tetracyclines have been shown to depress plasma prothrombin activity; patients on anticoagulant therapy may require downward adjustment of their anticoagulant dosage.
In long-term therapy, perform periodic organ system evaluations (including blood, renal, hepatic).
Treat all Group A beta-hemolytic streptococcal infections for at least 10 days.
Since bacteriostatic drugs may interfere with the bactericidal action of penicillin, avoid giving tetracycline with penicillin.
ADVERSE REACTIONS: Gastrointestinal (oral and parenteral forms): anorexia, nausea, vomiting, diarrhea, glossitis, dysphagia, enterocolitis inflammatory lesions (with monilial overgrowth) in the anogenital region.
Skin: maculopapular and erythematous rashes; exfoliative dermatitis (uncommon). Photosensitivity is discussed above (See **WARNINGS**).
Renal toxicity: rise in BUN, apparently dose related (See **WARNINGS**).
Hypersensitivity: urticaria, angioneurotic edema, anaphylaxis, anaphylactoid purpura, pericarditis, exacerbation of systemic lupus erythematosus.
Bulging fontanels, reported in young infants after full therapeutic dosage, have disappeared rapidly when drug was discontinued.
Blood: hemolytic anemia, thrombocytopenia, neutropenia, eosinophilia.
Over prolonged periods, tetracyclines have been reported to produce brown-black microscopic discoloration of thyroid glands; no abnormalities of thyroid function studies are known to occur.
USUAL DOSAGE: Adults—600 mg daily, divided into two or four equally spaced doses. More severe infections: an initial dose of 300 mg followed by 150 mg every six hours or 300 mg every 12 hours. Gonorrhea: In uncomplicated gonorrhea, when penicillin is contraindicated, 'Rondomycin' (methacycline HCl) may be used for treating both males and females in the following clinical dosage schedule: 900 mg initially, followed by 300 mg q.i.d. for a total of 5.4 grams.
For treatment of syphilis, when penicillin is contraindicated, a total of 18 to 24 grams of 'Rondomycin' (methacycline HCl) in equally divided doses over a period of 10-15 days should be given. Close follow-up, including laboratory tests, is recommended.
Eaton Agent pneumonia: 900 mg daily for six days.
Children—3 to 6 mg/lb/day divided into two to four equally spaced doses.
Therapy should be continued for at least 24-48 hours after symptoms and fever have subsided.
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In patients with renal impairment (see **WARNINGS**), total dosage should be decreased by reducing recommended individual doses or by extending time intervals between doses.
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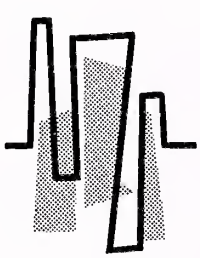

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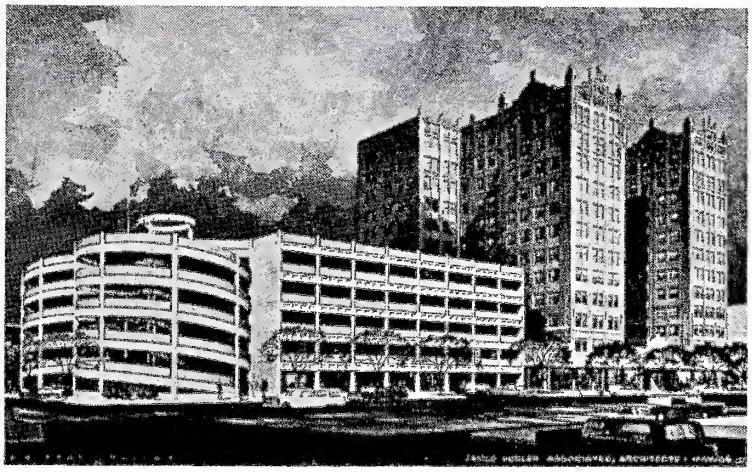

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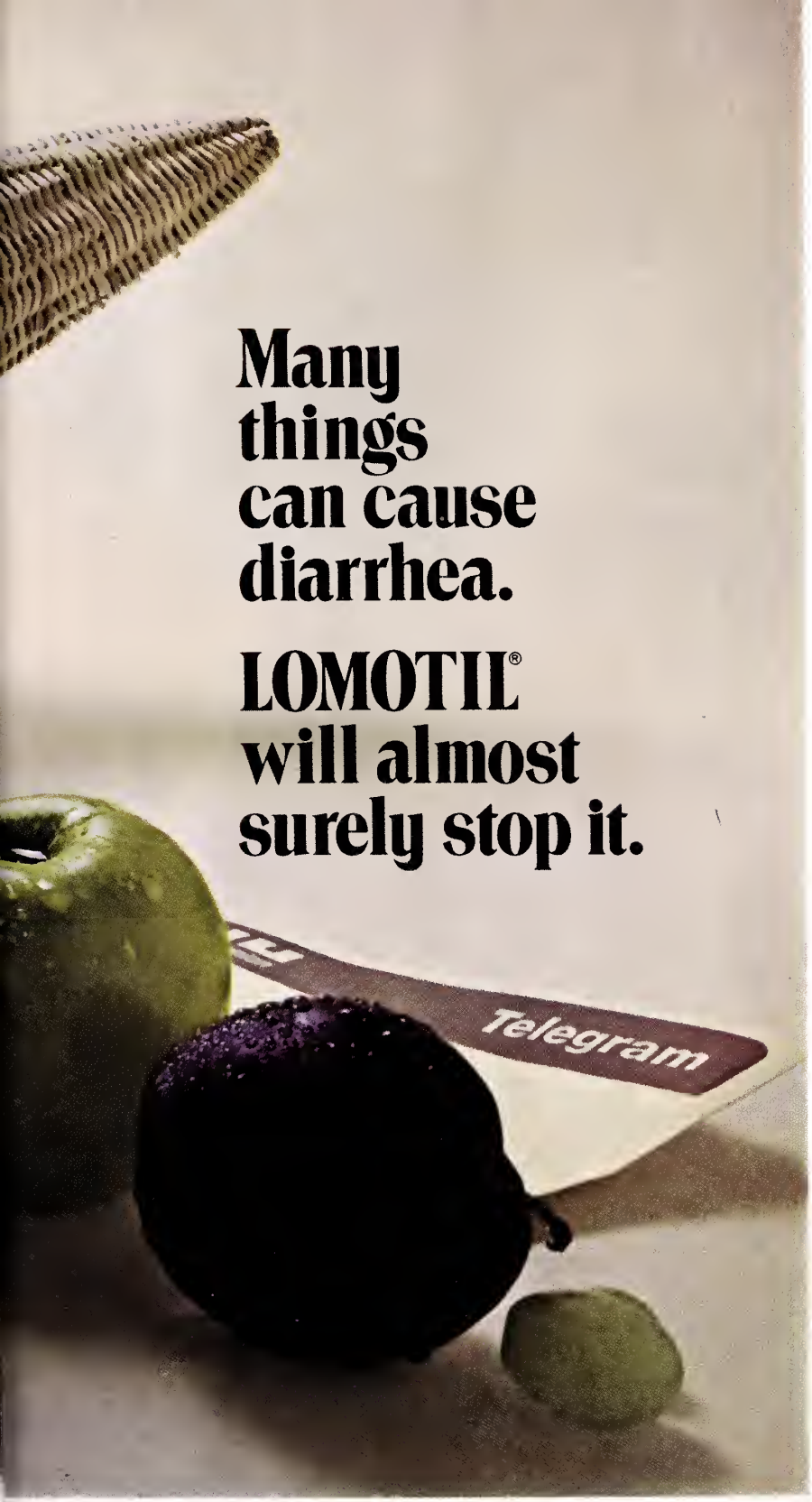

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NOTE: *Concomitant therapy:* Antacids containing aluminum, calcium, or magnesium impair absorption; do not give to patients taking oral minocycline. Studies to date indicate that MINOCIN is not notably influenced by foods and dairy products.

*Indicated in infections due to susceptible organisms. Culture and sensitivity testing recommended. Tetracyclines are not the drugs of choice in the treatment of any staphylococcal infection.
†Case Report, Clinical Investigation Department, Lederle Laboratories.

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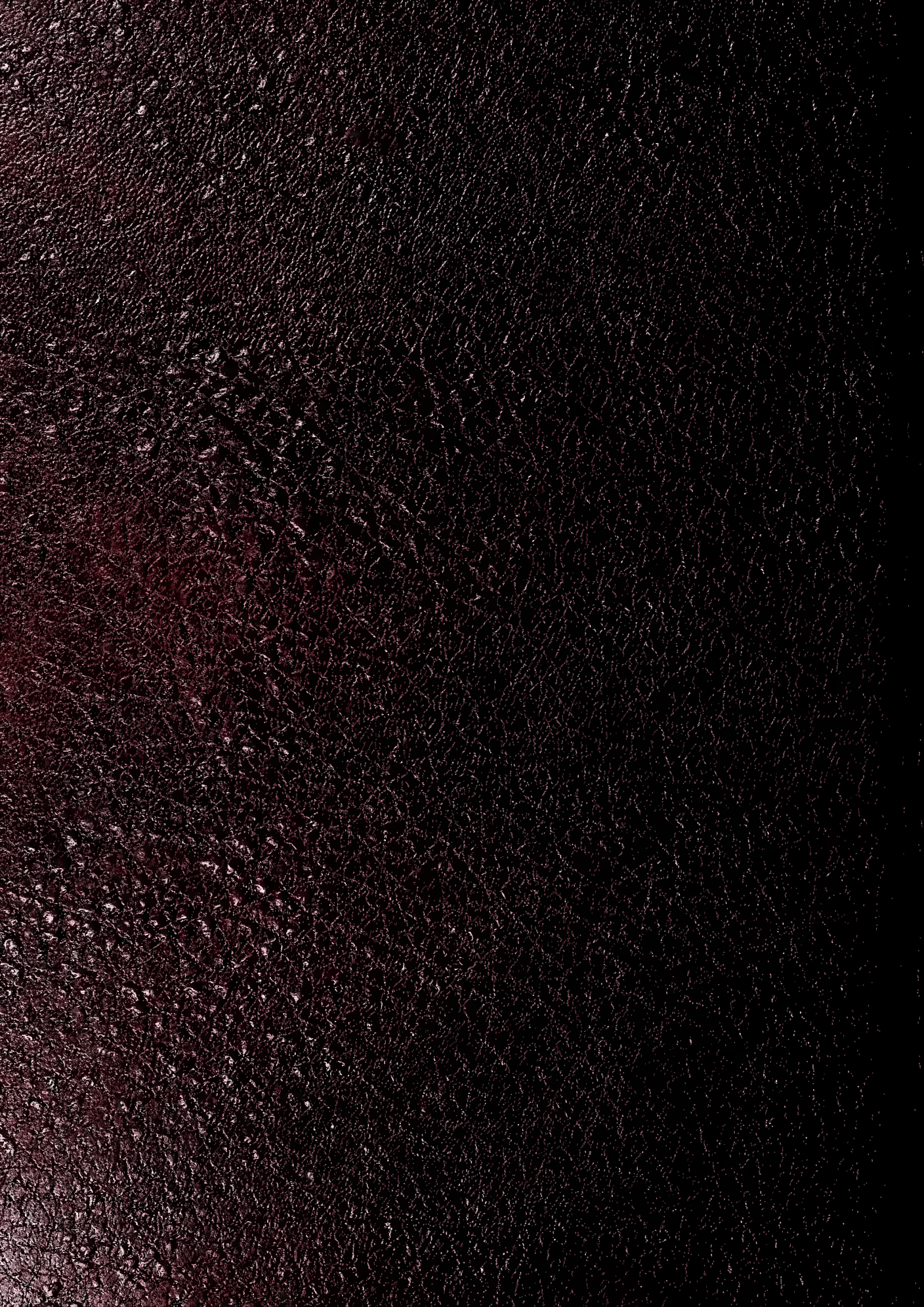
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